The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[The MINING JOURNAL is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.]

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MR. JAMES H. CROFTS, STOCK AND SHARE BROKER, AND MINING SHARE DEALER,
No. 1, FINCH LANE, CORNHILL, LONDON, E.C.
ESTABLISHED 1842.

BUSINESS transacted in all descriptions of MINING Stocks and Shares (British and Foreign), Consols, Banks, Bonds (Foreign and Colonial), Railways, Miscellaneous, Insurance, Assurance, Telegraph, Shipping, Canal, Gas, Water, and Dock Shares.

BUSINESS negociated in Stocks and Shares not having a general market value.

BUSINESS in COLLIERY and IRON Shares, and in the principal WAGON and MANUFACTURING COMPANIES of the NORTH of ENGLAND and SCOTLAND.

BUSINESS in all the principal COTTON SPINNING Shares.

Mr. J. H. CROFTS, having now established CORRESPONDING AGENCIES in all the CHIEF TOWNS of the United Kingdom, is prepared to deal in the various LOCAL Stocks and Shares at close market prices.

ACCOUNTS OPENED FOR THE FORTNIGHTLY SETTLEMENT.

A Daily Price List, issued at 5 P.M., giving latest Quotations up to close of Market. Also, on the 1st of every month a List of all Securities currently dealt in upon the Mining and Stock Exchanges, with latest prices, current dividends, rate of interest yielded at market price, &c., and every Friday a general List containing closing prices of the week.

MINES INSPECTED.

BANKERS: CITY BANK, LONDON; SOUTH CORNWALL BANK, ST. AUSTELL.

SPECIAL DEALINGS in the following, or part:—

25 Chapel House, £2 17 6	50 Javali, 8s. 9d.	50 Parys Moun., 8s.
50 Chontales, 14s.	25 Leadhills, £2 18s. 9d.	30 Rookhope, 16s.
10 D'Eresby Consols.	50 Llanrwst.	10 Richmond, £8¼.
15 East Van, £4⅞.	100 North Laxey, 2s. 6d.	50 Van Consols, 10s.
50 Flagstaff, 12s.	30 Penstruthal, 4s. 6d.	50 W. Tankerville, 5s.
25 Hultafall, £3¼.	50 Pestarena, 5s.	

*** SHARES SOLD FOR FORWARD DELIVERY (ONE, TWO, OR THREE MONTHS) ON DEPOSIT OF TWENTY PER CENT.

FOREIGN BONDS—ARGENTINE—EGYPTIAN—RUSSIAN, TURKISH, SPANISH, PERU. &c.
SPECIAL BUSINESS in the above, and Fortnighty Accounts opened on receipt of the usual cover.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

RAILWAYS—HOME AND FOREIGN.—SPECIAL BUSINESS in the above, and Fortnightly Accounts opened on receipt of the usual cover.
JAMES H CROFTS, 1, FINCH LANE, LONDON.

MISCELLANEOUS AND TRAMWAY SHARES.—SPECIAL BUSINESS in—

MISCELLNAEOUS.	Royal Aquar. (Westm.)	North Metropolitan
Alhambra Palace.	London Steam-boat.	Tramways.
Brighton Aquarium.	Lawes Chemical.	Tramway Union.
	Globe Telegraph.	

BUSINESS TRANSACTED in all MISCELLANEOUS SHARES (of whatever description) having LONDON or COUNTRY MARKET VALUES.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.
Bankers: City Bank, London; South Cornwall Bank, St. Austell.
ESTABLISHED 1842.

MR. W. H. BUMPUS, STOCK AND SHARE BROKER, AND MINING SHARE DEALER,
44, THREADNEEDLE STREET, LONDON, E.C.
ESTABLISHED 1867.

BUSINESS transacted in STOCK EXCHANGE SECURITIES and MISCELLANEOUS SHARES of every description.
RAILWAYS, BANKS, FOREIGN and COLONIAL BONDS, TRAMWAYS, TELEGRAPHS, and all the LEADING INVESTMENTS,
Accounts opened for the Fortnightly Settlement.
A Stock and Share List free on application.

MR. BUMPUS has SPECIAL BUSINESS in the undermentioned:—

30 Aberdaunant, 6s. 6d.	20 East Van, £5½.	10 Pateley Bridge.
70 Almada, 6s. 9d.	15 Frontino, £3¼.	70 Pandora, 11s. 6d.
50 Bodidris.	25 Flagstaff, 12s.	50 Penstruthal, 4s. 9d.
25 Blue Tent, £2½.	100 Gold Run, 3s. 6d.	25 Port Phillip, 10s. 6d.
100 Chontales, 12s. 6d.	10 Grogwinion.	60 Parys Mount., 8s.
20 Colorado, £3⅞.	70 Glenroy, 12s. 6d.	10 Roman Gravels, £7½.
15 Chapel House Colliery	5 Great Laxey, £19¼.	50 Rookhope, 16s. 6d.
150 Cedar Creek, 4s. 3d.	50 Hultafall.	20 Richmond, £8¼.
50 Derwent, 24s. 6d.	60 Javali, 8s. 6d.	15 So. Condurrow.
20 Devon Cons., £2½.	25 Kapanga, 26s.	10 South Frances, £3¾.
75 Don Pedro, 8s. 6d.	30 Leadhills, £23¼.	20 Tankerville, £3 19s 6d
30 Eberhardt, £4 3s. 9d.	20 Llanrwst.	5 Van, £19¼.
50 East Caradon.	50 Last Chance, 19s. 6d.	20 W. Godolphin, 10s.
10 E. Chiverton, 31s.	40 Marke Valley, 11s. 6d	25 Wh. Grenville.
	25 New Quebrada, 41s.	

DEVONPORT AND TIVERTON BREWERY COMPANY.—FOR SALE (to close an account), a FEW SHARES, at £3 12s. 6d each, for cash.

SPECIAL BUSINESS, at close prices, in the SHARES of all the principal HOME and FOREIGN MINES.

WILLIAM HENRY BUMPUS, SWORN BROKER.
Offices: 44, Threadneedle Street, London, E.C.
BANKERS—The NATIONAL PROVINCIAL BANK OF ENGLAND, E.C.

WILLIAM B. COBB, STOCK AND SHARE DEALER,
62, CORNHILL, LONDON, E.C.
Bankers: The Alliance Bank (Limited).

MR. THOMAS THOMPSON, JUN., STOCK BROKER,
1, PALMERSTON BUILDINGS, BISHOPSGATE STREET, LONDON, E.C.

Mr. THOMPSON transacts business in every species of Stock Exchange and Mining Securities.

Mr. THOMPSON affords reliable information to investors, and can give, when desired, a list of first-class Stocks and Shares, yielding 4 to 10 per cent. dividend upon present prices.—Mr. THOMPSON'S weekly Circular may be had on application.

MESSRS. OWEN AND CO.,
STOCK AND SHARE BROKERS.
OFFICES: 4, BISHOPSGATE STREET WITHIN, E.C.
Bankers: The National Provincial Bank of England.

Business in every kind of English and Foreign Stocks and Shares at the best market prices for the day; also in TRAMWAY, GAS, WATER, ROLLING STOCK, and INDUSTRIAL COMPANIES SHARES.

Messrs. OWEN and Co. possess great facilities for securing advantageous markets for MINING SHARES, as they have opportunities for obtaining exclusive and reliable information relating to the leading undertakings of this description.

Orders by post or telegram promptly executed.
Office of "Tramways Intelligence," 1878.

MR. W. MARLBOROUGH, STOCK AND SHARE DEALER,
29, BISHOPSGATE STREET, LONDON, E.C. (Established 22 Years),
can sell the following SHARES, at prices annexed:—

50 Aberdaunant.	20 East Lovell, 6s. 3d.	20 Parys Mountain, 7s.
40 Bodidris, 26s.	10 East Van, £4¾.	15 Pateley Bridge, £4½.
20 Birdseye, 16s. 3d.	10 Eberhardt, £4 12s. 6d.	100 Penstruthal, 4s. 6d.
15 Blaen Caelan, £4 2s 6d	50 Exchequer, 2s. 6d.	15 Richmond, £8.
20 Cambrian, £2 12s. 6d.	15 East Caradon.	40 Rookhope, 15s. 3d.
50 Chontales.	20 Frontino, £3 2s. 6d.	100 Rossa Grande, 2s. 3d.
10 Chicago, 15s.	50 Flagstaff, 11s. 6d.	10 Roman Grav., £7½.
95 Colorado, £3 17s. 6d.	30 Glenroy, 12s. 6d.	5 Tankerville, £3 12s. 6
20 Court Grange, 20s.	15 Gorsedd & Mer. £4¾.	30 Tecoma, 4s.
100 Don Pedro, 12s.	25 Hultafall, £3 5s.	30 Tyn-y-Fron.
10 D'Eresby Con., £8¼.	25 Last Chance, 18s. 9d.	5 Van, £18¾.
1 D'Eresby Moun., £79½	15 Linares, £5.	10 West Chiverton, £6¾.
4 East Craven Moor, £3 paid, offer wanted.	5 Leadhills, £27½.	5 Wh. Grenville, £2.
5 ditto, fully paid, £6¼	20 Morfadu, 12s. 6d.	20 W. Wye Valley, £2 6 3
	25 N. Zea. Kap., £1 7s. 6	100 Yorke Peninsula, 5s. 3
	25 Pandora, 12s.	

Shares bought and sold at net prices. Telegrams promptly attended to.
Specially Recommended for an early rise in price:—Gorsedd and Merilyn, Bodidris, Tyn-y-Fron, Hultafall, Pandora, and D'Eresby Mountain.

MESSRS. PETER WATSON AND CO.,
54, OLD BROAD STREET, LONDON, E.C.
BUSINESS in STOCKS and SHARES.
RAILWAYS, BANKS, DIVIDEND LEAD MINES, &c.
BANKERS: The ALLIANCE BANK (Limited).
A CIRCULAR published MONTHLY. Single copy, 6d.; annually, 5s.

MR. ALFRED E. COOKE,
STOCK AND SHARE DEALER,
76, OLD BROAD STREET, LONDON, E.C.
ESTABLISHED 1853.

LOWEST PRICES of MINE SHARES may be FOUND in the "INVESTORS' GAZETTE," published every Friday Evening.
Single number, three stamps; 2s. 6d. quarterly.
ALFRED E. COOKE, STOCK AND SHARE DEALER,
76, OLD BROAD STREET, LONDON.
Established 1853.

MR. JAMES STOCKER, STOCKBROKER,
2, CROWN COURT, THREADNEEDLE STREET, LONDON, E.C.
Mr. STOCKER Transacts Business in all Stock Exchange Securities.
[Established 1848.]

BUSINESS in the FOLLOWING SHARES:—

Carn Brea, £32¼.	Rookhope, 16s. 3d.	
Chapel House, £2 16s.	South Frances, £3¾.	Colorado, £3⅞.
D'Eresby Mountain.	Tankerville, £3¾.	Chontales, 13s.
East Van, £4⅞.	Van, £19¼.	Don Pedro, 8s.
Grogwinion, £2½.	United Mexican.	Eberhardt, £4½.
Glenroy, 12s. 6d.	Wye Valley, 28s. 9d.	Flagstaff, 10s. 6d.
Glyn, £⅝.	W. Wye Valley, 47s. 6d	Frontino, £3½.
Great Laxey, £19.	West Chiverton, £6¼.	Hultafall, £3¼.
Leadhills, £1 16s. 6d.	Wh. Grenville, 41s.	Javali, 8s.
Llanrwst, 40s.		Last Chance, £⅞.
Pandora.	Telegraphic Construct,	N. Zealand Kapan., 26s
Penstruthal, 4s. 6d.	North Metropolitan.	Pestarena, 4s. 3d.
Parys Mountain, 7s. 9d.	London Steam-boat.	Port Phillip, 10s. 9d.
Pateley Bridge.	Peninsular and Orien.	Richmond, £8¼.
Roman Grav., £7½.	Provincial Tram.	

BANKERS: LONDON AND WESTMINSTER.

FERDINAND R. KIRK, STOCKBROKER,
5, BIRCHIN LANE, E.C.

"THE WEEK."—A SEPARATE EDITION from that which appears in the *Mining Journal* is published every Wednesday evening, containing "Notes and Hints on the Stock Markets," with Closing Prices. May be had on application.

FORTNIGHTLY ACCOUNTS.—The principal dealings are now centred in Consols, Turkish Fives, Unified, Spanish, Bolivian, Chatham, Great Eastern, and District. The necessary "cover" may be learnt on application.

FOREIGN RAILWAYS.—Special Business in East Argentine, Mexican, Ottoman, and Varna.

MISCELLANEOUS.—A large business is being done in Government Stock Investment, Railway Share Trust, Odessa Waterworks, Hudson Bay, General Credit, and Royal Aquarium.

COLLIERIES.—The following may always be dealt in at close prices:—Bilson and Crump, Cardiff, Newport Abercarn, and Chapel House.
Bankers: London and Westminster, Lothbury.

MR. T. E. W. THOMAS, SHARE BROKER,
3, GREAT WINCHESTER STREET BUILDINGS, E.C.
Established 1857.

The following are the latest prices at which business could be done. Where the difference between the buying and selling price is wide transactions may be effected at an intermediate price:—

	Buyers.	Sellers.		Buyers.	Sellers.
Aberdaunant	4s.	5s.	Leadhills	£ 2½	£ 3
Argentine	3s.	5s.	Mellanear	3¾	4
Bodidris	£ 1½	£ 1¾	New Quebrada	1⅞	2⅛
Cambrian	3	3¼	New Zealand Kapanga	1	1½
Colorado	3⅛	3⅞	Parys Mountain	7s.	8s.
Chontales	12s.	14s.	Penstruthal	3s.	5s.
Clementina	1	1¼	Plynlimmon	2s.	3s.
D'Eresby Consols	7	9	Richmond	8	8¼
Denbighshire	1¾	1½	Roman Gravels	7¼	7½
Devon Great Consols	1½	2	Rookhope	12s. 6d	15s.
Don Pedro	10s.	12s. 6d	South Condurrow	11	11¼
Eberhardt	4½	4¾	Tecoma	2s.	4s.
East Caradon	10s.	15s.	Tyn-y-Fron	1¾	1½
East Van	4⅝	4⅞	Tankerville	3½	3¾
Flagstaff	10s.	12s.	Tincroft	6	8
Frontino	3	3¼	Van	17½	18¼
Glenroy	10s.	12s. 6d.	West Chiverton	5	7
Glyn	10s.	12s. 6d.	West Godolphin	10s.	12s. 6d
Gorsedd and Merilyn	4	4¼	West Seton	6	8
Grogwinion	2	2½	West Wye Valley	2	2⅛
Great Laxey	18¼	19	W. Grenville	1¾	2
Hultafall	2¾	3¼	Wye Valley	1¼	1½
Last Chance	⅞	1	Yorke Peninsula	5s.	6s.

MR. E. J. BARTLETT, STOCK AND SHARE DEALER,
No. 30, GREAT ST. HELEN'S, LONDON, E.C.

SPECIAL BUSINESS at close prices in East Lovell, East Van, D'Eresby Mountain, Chapel House Colliery, Great Laxey, Minera, Richmond, Bodidris, South Condurrow, South Caradon, West Chiverton, West Tolgus, Blaen Caelan, Gawton, Llanrwst, and Wheal Peevor shares.

MESSRS. ENDEAN AND CO., 85, GRACECHURCH STREET
LONDON, E.C., STOCK AND SHARE DEALERS.
Established in 1861.
Bankers: Barclay, Bevan, and Co., and London and Westminster Bank, Lothbury.

English and Foreign Stocks and Shares and all other Securities dealt in for cash or account.

THE LLANRWST MINING DISTRICT.

Messrs. ENDEAN AND CO., having just made a tour of inspection of the mines in this district, are enabled to give intending investors the LATEST AND MOST RELIABLE INFORMATION respecting the principal properties in this rapidly improving mining centre. Llanrwst, South de Eresby, D'Eresby Mountain, D'Eresby Consols, and Aberllyn. Valuable information as to the future prospects of these mines on application.

CAUTION.

To the Shareholders of the Llanrwst Mining Company (Limited).

Certain parties, dating from Southwark, are offering shares in this property. They are not known on the London Market, and anyone tempted to buy by their offer should see that they have a transfer certified by the Secretary of the company before they part with their money.

WILLIAM GABBOTT, STOCK AND SHARE DEALER,
8, DRAPER'S GARDENS, THROGMORTON STREET,
LONDON, E.C.

MESSRS. JONES AND HOUSTON, 25, CROSBY HALL CHAMBERS, BISHOPSGATE STREET WITHIN, LONDON, E.C., can SELL the following:—

100 Aberdunanant, 5s.	30 East Van, £5.	100 Parys Mount., 8s. 6d.
50 Argentine, 5s.	150 Flagstaff, 12s.	30 Pateley Bridge, £4¾.
30 Bodidris, £1 5s.	20 Frontino, £3¾.	50 Pant-y-Mwyn, £5 10s.
10 Cardiff & Swan., 30s.	10 Gorsedd and Merilyn, £4 15s.	200 Penstruthal, 5s. 3d.
30 Colorado, £4.	15 Grogwinion, £2¾.	110 Plynlimmon, 3s.
100 Chontales, 12s. 6d.	10 Gt. Laxey, £19.	30 Richmond.
50 Central Van, 15s.	25 Hultafall, £3½.	40 Roman Gravels.
30 Chapel House, £3.	1 London Steam-boat (7 per cent. debenture), £120.	300 South Aurora, 4s.
100 Cedar Creek (off. w.)	30 N. Zealand Kapanga, 30s.	45 Tyn-y-Fron, £1 12s.
6 D'Eresby Con., £9½.	200 North Laxey, 4s.	10 Van, £20.
14 Denbighshire, 30s.		15 West Wye Valley.
5 Devon Consols.		10 Wye Valley, 30s.
200 Don Pedro, 12s. 9d.		10 Wheal Newton, £3¼.
100 Eberhardt, £4¾.		5 West Seton (off wtd.)

Special Business in Pant-y-Mwyn Lead Mining Shares, either as Buyers or Sellers. The reports from the mine are startling. The following is an exract from a letter just received from Capt. Hughes, the manager of the mine:—"Respecting the runs of ore going down the ore gets stronger as we go down. We have just cut a fresh run of ore in the bottom level 30 yards below the day level." In his previous report he states:—"In the 20 yard level east there is a cross-cut driven 6 yards from the old lode to the new lode. Ore has been cut 6 ft. solid.
Bankers: London and Provincial.

MR. CHARLES THOMAS,
MINING AGENT, STOCK AND SHARE DEALER,
3, GREAT ST. HELEN'S, LONDON, E.C.

MR. ALFRED THOMAS,
MINING AGENT, AND STOCK AND SHARE DEALER.
10, COLEMAN STREET, LONDON, E.C.

"INVESTMENTS AND SPECULATIONS" for 1878,
Price Sixpence.

MR. EDWARD ASHMEAD, 62, CORNHILL, LONDON,
LONDON MINE AGENT, ACCOUNTANT, AND AUDITOR.

ABBOTT AND CO.
STOCK AND SHARE DEALERS,
12, UNION COURT, OLD BROAD STREET, E.C.

MESSRS. W. REYNOLDS AND CO.,
STOCK AND SHARE DEALERS,
57, GRACECHURCH STREET, AND TALBOT COURT,
LONDON, E.C.

MESSRS. J. TAYLOR AND CO
MINING ENGINEERS AND INSPECTORS,
56, LONDON WALL, LONDON, E.C.,
Have Agents in England, Scotland, Wales, and on the Continent.

MESSRS. EKINS AND CO.,
STOCK AND SHARE DEALERS,
14, QUEEN VICTORIA STREET, LONDON, E.C.
Bankers: Metropolitan.

MR. JOHN B. REYNOLDS, STOCK AND SHARE DEALER,
70 AND 71, BISHOPSGATE STREET WITHIN, LONDON, E.C.
Established Twenty Years.
Bankers: London—City Bank.
Cornwall—Messrs. Tweedy, Williams, and Co., Redruth.

FOR SALE, a LIMITED NUMBER of £5 5s. Shares (fully paid up), at par, in a company supported by the chief noblemen, clergy, and aristocracy of the kingdom. Immediate application necessary.
Address, Mr. J. ANDERSON, 14, Devonshire Square, Bishopsgate-street, London, E.C.

LEAD MINING IN WALES.—FIVE HUNDRED SHARES TO BE SOLD in a FIRST-CLASS COMPANY (Limited) in WALES at a reasonable price. A good dividend will be declared in December, which will treble the value of shares.
Full particulars on application of Mr. J. ANDERSON, 14, Devonshire Square, Bishopsgate-street, London, E.C.

FOR SALE, a GOOD LEAD SETT in WALES, on EASY TERMS. Also, a SLATE QUARRY of great value.
Full particulars on application of Mr. J. ANDERSON, 14, Devonshire Square, Bishopsgate-street, London, E.C.

SPECIAL.—INVESTORS desirous of DOING BUSINESS in any LEAD MINING SHARES, should immediately communicate with Mr. J. ANDERSON, 14, Devonshire Square, Bishopsgate street, London, E.C.

MR. J. ANDERSON, STOCK AND SHARE DEALER,
14, DEVONSHIRE SQUARE, BISHOPSGATE STREET,
LONDON, E.C.,
Is always in a position to BUY or SELL SHARES at market prices.
WANTED—500 Cape Copper, 50 Van, 500 East Van, and 200 Devon Great Consols. State lowest price.

MR. JOHN SPRAGUE, Mining Agent, SEEKS a PERMANENT APPOINTMENT, or INSPECTION of MINES. Assays for Gold and Silver.—Address, Mumbles, Swansea.

SEVERAL SLATE AND SLAB QUARRIES, in North Wales, FOR SALE; also, a LEAD MINE, in active operation.
For further particulars, refer to THOMAS HOBLEY, 19, Regent-road, Manchester.

FOR SALE (the whole or part):—

100 Bettws-y-Coed, 13s.	40 Hornachos, £14.	50 Grogwinion, £2¼.
	100 Temple, £6½.	20 Pateley Bridge, £4¼.
100 Court Grange, 17s. 6d.	100 Tyn-y-Fron, £1¾.	30 Gorsedd & Mer., £4.
3 D'Eresby Moun., £65.	50 Pandora, 11s.	100 Parys Mountain, 8s.
100 Hultafall, £3¼.	20 East Van, £5½.	20 Monydd Gorddu, £2½

Address, H. WILKINS, 3, Heybourne Villas, Tottenham.

MINING.—A Gentleman having expended much time and money in this country, and having made the most extensive discoveries upon a large tract of land, and of which he has a LEASE of the MINERALS, is desirous of finding a CAPITALIST to JOIN HIM in one of the MOST ADVANTAGEOUS and SAFE SPECULATIONS.
Address, "Cato," care of MINING JOURNAL, 26, Fleet street, E.C.

WANTED, a good SECONDHAND LIFT, to include a 16 inch working barrel (not less than 12 feet long), door-piece and windbore to match: 35 yards of 17 inch PUMPS, buckets, clacks, and flange pins for the same.
Apply, stating lowest price, to the TALARGOCH MINING COMPANY (Limited), near Rhyl.

RICHMOND CONSOLIDATED MINING COMPANY (LIMITED).
The Directors of the above company REQUIRE the SERVICES of a MINE SURVEYER, at their mine in Eureka, Nevada. Applicants must be thoroughly qualified, and be good draughtsmen, and also be prepared to devote any portion of their time not occupied with their ordinary duties to such other duties connected with the mine as the superintendent may require. Salary, £350 per annum.
Application must be made, in writing, to the Secretary, at the company's office, 44, Coleman-street, London, E.C., and state applicant's qualification for the office.

THE CYPRUS INVESTMENT AND IMPROVEMENT COMPANY (LIMITED).
OFFICES,—19 AND 20, WALBROOK, LONDON, E.C.
BANKERS—Messrs. HENRY S. KING AND CO., 65, Cornhill, London, E.C., and Cyprus.

The SHARE-LIST will CLOSE on SATURDAY, the 31st August, for LONDON, and MONDAY, the 2nd September, for the COUNTRY. On or before these dates all applications for shares must be sent to the company's bankers.
Prospectuses, with forms of application for shares, may be obtained from the bankers, or at the company's offices.
By order, C. T. REEVES, Secretary.
19 and 20, Walbrook, London, August 23rd, 1878.

THE ISLAND OF CYPRUS.—A PRACTICAL MINER and ASSAYER, of great experience, seeks an ENGAGEMENT to go out to CYPRUS (or other new country) EXPLORING for MINERAL, in addition to thirty years' experience in the WORKING and MANAGEMENT of MINES. Can assay the different minerals, also the precious metals. Would co-operate with a preliminary company, giving professional services for a share in valuable concessions which he may discover and obtain. Travelling and expenses necessary for the expedition only being paid. Reference to the highest mining authority.—Apply to "Mining Engineer," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

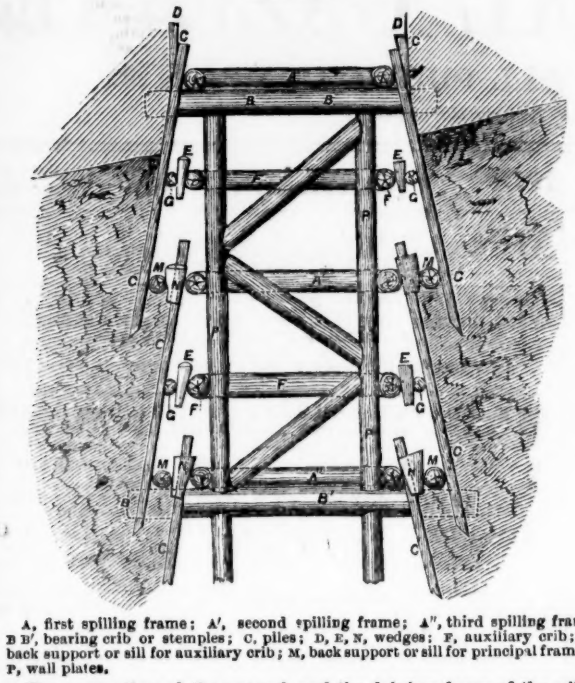
CYPRUS.—AN EXPERIENCED MINING ENGINEER on EXPLORING or PROSPECTING, for many years in America, and a Pupil of the Royal School of Mines in London, a native Greek of great commercial experience, and fluent with the Turkish, Arab, and Slavonian dialects, and their way of doing business, and laws as well, will be happy to MEET a PARTY or PARTIES wishing to participate in the enormous benefits which may accrue from his systematic undertaking in the EXPLORATION and ACQUISITION of MINES in the ISLAND OF CYPRUS, ASIATIC TURKEY, EUROPEAN TURKEY, BOSNIA, HERZEGOVINA, and BULGARIA provinces, where he is personally acquainted with different rich Mines. He will be reasonable and accommodating to responsible and serious parties possessing means. To direct communications (and not through agencies) only will pay attention, with whom he will be very happy to come to full explanations.
Address to "Mining Engineer," 18, Halsey-street, Chelsea, S.W., London.

Lectures on Practical Mining in Germany.

CLAUSTHAL MINING SCHOOL NOTES.*—No. LXXXIV.

BY J. CLARK JEFFERSON, A.R.S.M., WH. SC.,
Mining Engineer, Wakefield.
(Formerly Student at the Royal Bergakademie, Clausthal).
[The Author reserves the right of reproduction.]

Section V.



A, first spilling frame; A', second spilling frame; A'', third spilling frame B B', bearing crib or stemples; C, piles; D, E, N, wedges; F, auxiliary crib; G, back support or sill for auxiliary crib; M, back support or sill for principal frames; P, wall plates.

The excavation of the ground, and the driving down of the piles again take place, until the piles have been driven down to nearly their full length. The ground is not completely removed down to the ends of the piles, which should be covered for 3 or 4 in. by the ground. Another weaker frame, or sill (N, see fig.), is then inserted, which fits pretty closely against the ends of the piles. In the same plane, and normal to the direction of the shaft, the second principal frame (A'), or "Ansteck-geviere," is placed, and carefully adjusted, so that the corresponding corners of the first and second principal frames, which are of exactly the same dimensions, are in lines parallel to the general direction of the shaft. This second principal frame is held in position by means of wedges inserted between it and the sill. Before the insertion of the next principal frame it will be necessary to insert the bearing stempels (B'), one end of which will be notched into a corresponding stempel notch cut into the ground on the lying side, and driven down on the opposite side, in the usual manner. The third principal frame (A'') is now laid, and fixed securely in position on the bearing stempel. The separate frames are then strutted apart by means of vertical props (not shown in drawing), and the first set of the timbering is then completed.

The second set, or field, of spilling is then commenced by driving down piles between the sill (M) and the second principal frame (A''). It will be evident that where the props are set on the second principal frame, the insertion of piles behind the props can only be effected with difficulty; and if the piles are driven down in a vertical direction or parallel to the direction of the shaft gaps will be left in the lagging of the width of the props. These are usually closed temporarily with short narrow boards, until the piles have been driven down to nearly their full extent, when the heads of the piles will be behind the line of the props, and by inserting a few fresh piles the others may be pushed sideways behind the props, thus completing the lagging. After the second field of spilling has been completed, in the same manner as the first, it is carefully tested and adjusted, so that the corresponding corners of the principal frames lie in the same straight lines.

The following modification of shaft spilling is that chiefly used in the Harz Mines, at Clausthal, where the shafts are usually sunk on the lode, and not vertical. The very loose soil at the surface is taken up, and on the more solid ground thus exposed three strong beams (Ger. Rustbäume) are laid down, and carefully levelled and fixed in position, two stretching across the shaft close to and parallel to the shorter sides, the centre one being placed to correspond to the partition between the winding and the travelling divisions of the shaft. The length of these beams varies from two and a half to three times the width of the shaft, and they usually extend somewhat more beyond the hanging than the lying side of the shaft. On the top of these, and at right angles to them (over and parallel to the longer sides of the shaft), are placed two other strong beams, which are hollowed out on the under side, where they rest on the Rustbäume, and thus serve to keep the latter firmly in position, and at the proper distance from each other. Resting on the top of the Rustbäume, and fitted with a notched joint flush in the longitudinal bearers, are three cross pieces, which complete the first framework. Behind this first frame a second light frame, or sill, is placed, in such a manner as to leave a space of about 4 in. wide all round the first. Through this slit the piles are introduced, the thickest end, which is pointed, being first. The piles are usually of half round wood, with the flat side turned towards the wall of the shaft, and the curved side inwards. The length of the piles varies from 10 to 12 ft. The driving in of the piles commences, as usual, next the corners, and proceeds towards the centres of the sides. The excavation of the ground and driving forward of the piles continue until the latter have advanced from 3 to 4 ft., when a temporary sill is placed and strutted against the piles by means of bars, in order to prevent the latter from bending or being forced inwards. The piles are again driven forward the same distance, and temporarily supported by a weak sill frame. When this has been done it will be necessary to insert a second pair of bearing stempels. It is impossible to do this in the ordinary method by driving stempels in from above, and they will then be generally driven in from the side. Where it is possible the stempel notch will be cut in the rock, and the opposite end driven tight against the specially dressed surface of the ground. Where, owing to the nature of the ground, it is impossible to fix the stempel into the solid rock recourse must be had to thick planks laid against the sides, the one having the stempel notch cut in it, the other being slightly taper allows of the opposite end of the bearer being driven up tight. Between these bearing stempels longitudinal bearers are inserted close to the hanging and lying walls in the following manner:—The bearing stempel at one side has a mortise hole cut in it near the hanging side, and the stempel on the opposite side a mortice hole cut in it near the lying side. The two longitudinal bearers have tenons cut at one end, and are slightly hollowed out at the other, to suit the curvature of the bearing stempels, between which they are driven tight. On these bearing stempels and longitudinal bearers the second principal frame is placed, not horizontal, however, but normal to the direction of the shaft. When this frame has been securely fixed in position, the piles are driven down to their full length behind the lowest sill, which is supported by means of a few wedges inserted temporarily between it and the second frame. The sills, except the lowest, which have been placed temporarily to support the piles, are then withdrawn, and the hanging and lying walls are covered by longitudinal bearers. Sometimes these bearers are laid close upon each other, more generally they are supported by short props inserted between them, similarly as we have described for prop crib timbering. These longitudinal bearers extend the whole length of the shaft, and during their insertion are temporarily held in position by struts placed between them from the hanging to the lying side, and at a distance of a yard or more from each of the shorter sides, the struts being removed on the completion of the timbering of the shorter sides.

This side timbering (called in German "Wandruthenstrang") consists at each side of two long wall pieces (P, see fig.), which are footed on the cap pieces or shorter sides of the second principal frame or on the bearing stemples, and reach to the under side of the surface bearers. The wall pieces are placed in the corners of the shaft, and are held apart on the short sides by means of inclined struts, of which the lowest is footed with a mortice and tenon joint into the wall plate on the lying side, the opposite end and both ends of the other struts being hollowed out somewhat, to suit the curvature of the round timber forming the wall plates. When the timbering has been thus far completed the second set is commenced by driving down the piles in the space between the second principal frame and the sill supporting the ends of the first pile, the wedges between the two being removed as the piles are inserted.

When three or four sets have thus been inserted, and completed, the partition between the winding and travelling divisions of the shaft is then inserted. This consists essentially of two long wall pieces, held apart by means of struts. Where the ground is firm enough, a bearing stempel is notched into the ground on the lying side, and driven tightly up against the hanging side, in the usual manner. The long wall plates are footed on this bearing stempel, and strutted apart, by means of struts inclined alternately in the one direction and then in the other. The lower ends of the stempels are formed with a tenon, which fits into a shallow mortise hole formed in the wall plates; the upper ends are hollowed out slightly, so as to fit the round timber of which the wall plates are made; the wall plates of the partition, as well as those of the side, are pressed so tightly apart by the inclined struts as to take off a great portion of the weight on the bearing stempels.

In the above description of shaft spilling we have described the method as if all four sides of the shaft required to be covered by piles. Many cases will occur, however, in which it will only be necessary to line or spill some of the sides; as, for example, when sinking through a lode where it has already been worked out, and afterwards filled up with attle packing, the hanging and the lying wall requiring no covering; only the two shorter sides require to be spilled. The modifications which occur are exactly analogous to that of spilling levels in which only the two sides or roof, &c., required to be covered.

The greatest difficulty will be met with in sinking through quicksand, where no support whatever can be obtained for the timbering until it has been sunk through the quick ground except by suspending it from the surface. In such a case as this the longer bearers at the surface are placed so that the inner sides of the bearers are in a line with the inner sides of the longitudinal bearers in the shaft, the two shorter cross-bearers being placed some slight distance within the short sides of the shafts. From these cross bearers the timbering is suspended, by means of long [-shaped iron clamps, from one crib to the other. When the timbering has been carried some distance downwards its weight will be too great to be borne safely by means of iron clamps alone. To support this weight four long iron rods, 1½ in. to 2 in. in diameter, are hung from the cross bearers, so that they hang close against the corners of the timbering. Both the top and bottom ends of the rods are screwed; the lower ends pass through stout blocks of wood placed diagonally across the corners, and catching at both ends beneath the last crib. The blocks are held securely by bolt and washer, and in like manner the upper end of the rods passing through the cross bearers at the surface are secured on the upper side by means of bolt and washer. By means of the bolts the timber can be drawn up tight against the underside of the uppermost permanent frame or crib, the iron clamps are then removed, and the separate frames strutted from each other by means of short round props. The iron clamps are again used for suspending the next series of cribs until their weight becomes so great as to necessitate its suspension from the stronger round iron rods. The actual spilling is effected in the usual manner, and requires only that the piles should fit close against each other.

In the brown coal mines of Saxony the frames are placed from 3 ft. to 5 ft. only apart, the piles themselves being but slightly longer. A temporary frame is inserted between two of the principal frames, partly to serve as a support to the piles behind it and also as a guide for the piles of the next set during the first half of their insertion, thus obviating the necessity of a sill behind the principal crib. When this and the next set have been completed the auxiliary crib is removed, and four props are inserted at the corners between the longitudinal bearers. When several sets or fields of timbering have been completed the wall plates are inserted and held apart by means of struts, which are notched at both ends into the wall plates. Should any of the frames show a tendency to sink they are temporarily supported by means of long struts or props, which latter are footed on some of the incline struts between the wall pieces. Since the timbering is much more solid when the various wall plates are connected to those immediately above and below, they are often scarfed together.

Another mode of lining shafts, which may often be usefully applied, when the ground is so loose as to require a tolerably close support or lining, is that which is to be found in the upper part of the Eleanore shaft at Clausthal, and in many of the shafts in the Zellerfeld district of the Hartz Mines. This is the so-called "Aufgehearbeit," which requires that the ground although loose is still sufficiently compact as to stand open for a short time after excavation (*i.e.*, so that the shaft can be sunk 4 or 5 ft. without requiring the use of timber). The following is the method of inserting this timbering, supposing that the shaft has been lined some depth downwards. The ground is excavated 3 or 4 ft. below the last frame or crib, when the next frame, formed usually of round wood, is inserted. Behind these last two, vertical planks or strong laths are placed about 18 in. to 30 in. apart. These vertical planks, called "Aufgeher," are slightly longer than the distance between two cribs centre to centre. Behind the "Aufgeher" are placed the covering or lagging planks, called "Ausleger," more or less close together, according to the nature of the ground; these are placed in an horizontal direction, and form the support for the loose ground behind. In actually inserting the timber the "Ausleger" will be placed in position before the "Aufgeher" (by which they are secured) are inserted. In a similar manner the next 4 or 5 ft. is excavated and lined, and so on, until a sufficient advance has been obtained for inserting the wall plates at the two short sides, and in the line of the partition between the winding and travelling divisions of the shaft. The wall plates are then strutted apart in the ordinary manner by struts, inclined first in the one direction and then in the other.

* Being Notes on a Course of Lectures on Mining, delivered by Herr Bergrath Dr. Von Groddeck, Director of the Royal Bergakademie, Clausthal, The Harz, North Germany.

Peat as a Building Material.—The upper layers of peat moors consist generally of a light and fibrous sort of peat, which because of its low caloric value is not very suitable as a fuel, and has heretofore been of little or no commercial value. According to the invention of Mr. Georg Gercke, of Hamburg, this substance is by a peculiar mode of treatment (which, however, is modified and varied according to circumstances and requirements) rendered suitable for or formed into a material applicable for many purposes to which heretofore wood, stone, clay, earth, and other materials have been used; thus, for instance, this peat may be formed into boards or pieces suitable for roofing, panelling, flooring, and numberless building and other purposes requiring the application of a firm, durable, and more or less non-hygroscopic material, which shall also, if desired, be suitable for being planed, sawn, turned, embossed, and otherwise treated with tools, and which may also be polished, lacquered, or painted. This light peat possesses great plasticity, and may under heavy pressure receive the finest impressions or ornamentation, so as to render it suitable for trays, cups, and other such objects, with relief or other ornamentation. The peat is first dried, either in the air or by any artificial drying appliances, and is then cut in the required pieces or bricks, exposed to a great pressure in a press or by rollers. In order to render the material more or less non-hygroscopic it is by impregnations or otherwise treated with tar, asphalte, oils, lacquers water, glass, fat, tallow, sulphur, india-rubber, rosin, wax, wood, cement, or other suitable material or mixture. When a great strength or cohesion is desired, bast, oakum, tow, and rope waste, pieces of wood or metal, felt, cement, long peat fibres, reeds, heather, or other suitable objects may be placed between two or more such layers or plates of peat, and be joined therewith by a suitable cement. By this means the material is rendered more particularly suitable for building purposes (say) in the shape of boards. The plasticity of the material may be increased by treatment with steam.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

The usual annual meeting—the forty-eighth session—was this year held at Dublin, the retiring president, Prof. Allen Thomson, F.R.S., occupying the chair during the formal proceedings. The report of the Council for 1877-78 was read by Capt. Douglas Galton, and stated that the Council are of opinion that the existing rules of the Association will afford a sufficient guarantee for the exclusion of unscientific and unsuitable papers. They recommended that the appointment of sectional presidents, vice-presidents, and secretaries be made either a year in advance, or at such early period as the Council may find practicable; that no paper received after the commencement of the meeting shall be read unless recommended by the committee of the section after it has been referred and reported upon. The following gentlemen who have attended meetings of the Association have been elected corresponding members:—Prof. H. L. F. Helmholts, Berlin; Dr. H. Kronecker, Berlin; M. Akin Karsly, Pesth; Dr. Lindeman, Bremen; Prof. Moissonet, Paris. The Council have nominated the Duke of Abercorn, K.G., and the Earl of Enniskillen, F.R.S., as vice-presidents of the present meeting. Mr. Griffiths has retired, after 16 years service as secretary, and Mr. J. E. H. Gordon takes his place.

The real business of the meeting commenced when Prof. Thompson introduced the president elect—Mr. William Spottiswoode, F.R.S.—who at once proceeded to read his inaugural address, which was listened to with marked attention. In reviewing the history of the Association Mr. Spottiswoode said that it had already entered its fifth decade. It has held its meetings, of which this is the 48th, in 28 different towns, including six cities of note—York, Bristol, Newcastle-on-Tyne, Plymouth, Manchester, and Belfast. Its course of progress may be said to have a node or point through which it has twice passed in the five universities of Oxford, Cambridge, Dublin, Edinburgh, and Glasgow, and the two great commercial centres—Liverpool and Birmingham. It may similarly be said to have a triple point, or one through which it has passed three times. Of the 46 presidents more than half (26 in fact) have passed away, while the remainder hold important positions in science and in the public service. One of the methods by which the Association promotes the advancement of science consists in grants of money from its own income in aid of scientific research. The total amount so laid out during 47 years has been 44,000*l.*, and the average during the last ten years 1450*l.* per annum. These sums have been in the main wisely voted and usefully expended. The results have come back to the Association in the form of papers and reports. By this appropriation of a large portion of its funds the Association has to some extent anticipated the endowment of research, and whether the aspirations of those who advocate such endowment be ever realised or not there can be no doubt that the Association in these grants has afforded a powerful stimulus to original research. These grants present a strong similarity to the Professoriate Extraordinary of Germany, to which there are no foundations corresponding in this country, besides their more direct educational purpose. These professorships are intended, like our own grants, to afford to special individuals an opportunity of following out the special work for which they have proved themselves competent.

Referring to the progress of mathematics, the President remarked that the question of limitation in the range of mathematics is a subject matter for the presidential address not so simple as may appear. While on the one hand knowledge is distinct from opinion, from feeling, and from all other modes of subjective impression, still the limits of knowledge are at all times expanding, and the unknown is never rigidly or permanently fixed. Our ignorance consists in the ignorance of actual facts, and partly also in ignorance of the possible range of ascertainable facts. If we could lay down beforehand precise limits of possible knowledge, the problem of physical science would be already half solved; but the question to which the scientific explorer has to address himself is not whether he is able to solve either this or that problem, but whether he can so far unravel the tangled threads of the matter with which he has to deal as to weave them into a definite problem at all. If his eyes seem dim he must look steadfastly and with hope into the misty vision until the very clouds wreathe themselves into definite forms. If his ears seem dull, he must listen patiently and with sympathetic trust to the intricate whisperings of Nature—the goddess, as she has been called, of a hundred voices. If at a moment when he finds himself placed on a pinnacle from which he is to take a perspective survey of the range of science, and to tell us what he can see from his vantage ground; if, after straining his gaze to the very verge of the horizon, and describing the most distant of well-defined objects, he should give utterance to some of the subjective impressions which he is conscious of receiving from regions beyond; if he should depict possibilities which seem opening to the view, then the fault and the loss would be alike ours if we refused to listen calmly, if we failed to discriminate between the elements contained in such a discourse, and assume that they had all been put on the same footing.

As the solitariness of mathematics has been a frequent theme of discourse, it may not be unprofitable to dwell upon the other side of the question, and enquire whether there be not points of contact between mathematics and the outer world which have been overlooked—if its lines do not run parallel to those of other purposes of life, and whether we may not hope for some change in the attitude assumed towards it by the representatives of other branches of knowledge and mental activity. If it were my purpose to enumerate how the same tendency has evinced itself in the arts—unconsciously, it may be, to artists themselves—I might call as witnesses each one in turn, with full reliance on the testimony which they would bear. I might point to the great school of English constructors of the 18th century in the domestic arts, and remind you that not only the engineer and the architect, but even the cabinet-makers, devoted half the space of their books to perspective, and to the principles whereby solid figures may be delineated on paper, or what is now termed descriptive geometry. Nor, perhaps, would the sciences which concern themselves with reason and speech, nor the kindred art of music, nor even literature itself, offer fewer points of dependence upon the science of mathematics. What is logic but that part of universal reasoning, grammar but that part of universal speech, harmony and counterpoint but that part of universal music, "which accurately lays down" and demonstrates precise methods appertaining to each of these arts? I might even appeal to the common consent which speaks of the mathematical as the pattern form of reasoning and model of a precise style, taking precision and exactness as the characteristics which distinguish the mathematical phase of a subject. We are led to expect that the approach to such a phase will be indicated by increasing application of the principle of measurement, and the importance attached to numerical results.

This very necessary condition for progress, he continued, may be fairly described as one of the main features of scientific advance in the present day. As to the minuteness of measurement, I will confine myself to a passing notice of the very few instances, selecting those which exemplify not only the general tendency, but also

the special character of the measurements now particularly required—that of minuteness, and the indirect method by which alone we can at present hope to approach it. An object having a diameter of an 80,000th of an inch is the smallest of which the microscope could give any well-defined representation, and it is improbable that one of 120,000th of an inch could be singly discerned with the highest powers at our command. But the solar beams and the electric light reveal the presence of bodies far smaller than these, in the absence of any means of observing them singly. Prof. Tyndall has suggested a scale of these minute objects in terms of the lengths of luminiferous waves. To this he was led by taking account of them in the aggregate, and observing the tints which they scatter laterally when clustered in the form of actinic clouds. The small bodies with which experimental science has recently come in contact are not confined to gaseous molecules, but comprise also complete organisms, and the same philosopher has made a profound study of the momentous influence exerted by these minute organisms in the economy of life. If in view of their specific effects, deleterious and otherwise on human life, any qualitative classification or quantitative estimate be ever possible it seems that it must be effected by some such method as that indicated. There are the average distances of molecules from one another in various gases and at various pressures, the length of their free path or range being open for their motion without coming into collision. There are movements causing the pressures and differences of pressure under which Mr. Crookes' radiometers execute their wonderful revolutions. There are the excursions of the air while transmitting notes of high pitch, which, through the researches of Lord Raleigh, appear to be of a diminutiveness altogether unexpected. There are the molecular actions brought into play in the remarkable experiments by Dr. Kerr, who has succeeded where even Faraday failed in effecting a visible rotation of the plane of polarisation of light in its passage through electrified dielectrics, and on its reflection at the surface of the magnet.

The marvellous progress recently made in telephony next received attention, the President remarking that there are the infinitesimal ripples of the vibrating plate in Mr. Graham Bell's most marvellous invention of the nodes and ventral segments in the plate of the telephone, which actually converts sound into electricity and electricity into sound, of which we can at present form no conception. All that can now be said is that the most perfect specimens of Chladni's sand figures on a vibrating plate, or of Cundt's lycoqodium heaps in a musical tube, or even Mr. Sedley Taylor's more delicate vortices in the films of the phoneidoscope, are rough and sketchy compared with these—for, notwithstanding the fact that in the movements of the telephone plate we have actually in our hand the solution of that old world problem—the construction of a speaking machine, yet the characters in which that solution is expressed are too small for our powers of decipherment. In movements such as these we seem to lose sight of the distinction, or perhaps we have unconsciously passed the boundary, between massive and molecular motion. Through the phonograph we have not only a transformation but a permanent and tangible record of the mechanism of speech. But the difference upon which articulation, apart from loudness, pitch, and quality depends appears, from the experiments of Fleming Jenkin, to be of microscopic size. The microphone affords another instance of the unexpected value of minute variations in the case of electric currents, and it is remarkable that the gist of the instrument seems to lie in ohtaining and perfecting that which electricians have hitherto most scrupulously avoided—loose contact. Once more Mr. De la Rue has brought forward, as one of the results derived from his stupendous battery of 10,000 cells, strong evidence for supposing that a voltaic discharge, even when apparently continuous, may still be an intermittent phenomenon, but all that is known of the period of such intermittence is that it must recur at exceedingly short intervals. In connection with this subject, it may be added that, whatever be the ultimate explanation of the strange stratification which the voltaic discharge undergoes in rarefied gases, it is clear that the alternative disposition of light and darkness must be dependent on some periodic distribution in space, or sequence in time, which can at present be dealt with only in a general way. In the expanded column we have a vehicle for electricity not constant, like an ordinary conductor, but itself modified by the passage of the discharge, and perhaps subject to laws differing materially from those which it obeys at atmospheric pressure. It may also be that some of the features accompanying stratification form a magnified image or phenomenon belonging to disruptive discharges in general, but that, consequently, so far from expecting among the known facts of the latter any clue to an explanation of the former, we must hope ultimately to find in the former an elucidation of what is at present obscure in the latter. It is objected that, abandoning the more cautious methods of ancient mathematicians, we have admitted into our formulas quantities which, by our own showing, are imaginary or impossible, and out of them we have formed a variety of new algebras, to which there is no counterpart whatever in reality, but from which we claim to arrive at possible and certain results.

To fix our ideas, consider the measurement of a line or the reckoning of time, or the performance of any mathematical operation. A line may be measured in one direction or in the opposite; time may be reckoned forward or backward; an operation may be performed or may be reversed, it may be done or may be undone; and if, having once reversed any of these processes, we reverse it a second time we shall find that we have come back to the original direction of measurement or of reckoning, or to the original kind of operation. When we pass out of the condition of things first contemplated, they cannot give us any results intelligible on that basis, but it does not by any means follow that upon a more enlarged basis the formulæ are incapable of interpretation. On the contrary, the difficulties at which we have arrived indicate that there must be some more comprehensive statement of the problem, which will include cases impossible in the more limited, but possible in the wider, view of the subject. If both in geometry and in algebra we occasionally make use of points or of quantities which from our present outlook have no real existence, which can neither be delineated in space of which we have experience nor measured by scale as we count measurement; if these imaginaries are called up by legitimate processes of our science, if they serve the purpose not merely of suggesting ideas, but of actually conducting us to practical conclusions, I may be allowed to point out that in art unreal forms are frequently used for suggesting ideas, for conveying a meaning, for which no others seem to be suitable or adequate. Are not forms unknown to biology, situations incompatible with gravitation, positions which challenge not merely stability but even the possibility of equilibrium—are not these the very means to which the artist often has recourse in order to convey his meaning and to fulfil his mission?

The uncertainty of long numerical calculations probably led to the invention of calculating machines, and the idea of substituting mechanical for intellectual power has not long laid dormant, for, besides the arithmetical machines whose name is legion, from Napier's bones to Earl Stanhope's calculator, and the Schultz and Thomas's machines now in actual use, Prof. James Thompson has recently constructed a machine which, by means of the mere friction of a disc, a cylinder, and a ball, is capable of effecting a variety of complicated calculations which occur in the highest application of mathematics to physical problems. By its aid an unskilled labourer may perform the work of ten skilled arithmeticians. The machine is applicable alike to the calculation of tidal, of magnetic, of metereological, and perhaps, also, of all other periodic phenomena. It will solve the different equations of the second, and, perhaps, of even higher orders, and, through the same invention, the problem of finding the free motions of any number of mutually attractive particles, unrestricted by any of the approximate suppositions required in the treatment of the lunar and planetary theories, is reduced to the simple process of turning a handle.

Mathematics have been brought into matters where their presence has been a doubtful utility. If they have given precision to literary style that precision has sometimes been carried to excess, as in Spinoza, and, perhaps, Descartes. If they have tended to clearness of expression in philosophy that very clearness has sometimes given an appearance of finality not always true. If they have contributed to definition in theology that definiteness has often been fictitious, and has been attained at the cost of spiritual meaning. Coming to recent times, although displayed in the logical machines of Earl Stanhope and of Stanley Jevons, in the "formal logic" of De Morgan and in the "calculus" of Boole; although, as mathematicians, we may feel satisfaction that these feats (the possibility of which was clear, *a priori*) have been actually accomplished, yet we must bear in mind that their application is really confined to cases where the subject matter is perfectly uniform in character, and that beyond this range they are liable to encumber rather than to assist thought. In proportion as method is better than impulse, deliberate purpose than erratic action, the clear glow of sunshine than irregular reflection, and definite utterances than an uncertain sound, so in proportion knowledge is better than surmise, proof than opinion; and so, in proportion, is the mathematician's value of a discrimination between the certain and the uncertain, and a just estimate of the issues which depend upon one motive-power or the other. While, on the one hand, he accords to his neighbours full liberty to regard the unknown in whatever way they are led by the noblest powers they possess, so, on the other, he claims an equal right to draw a clear line of demarcation between that which is a matter of knowledge and that which is, at all events, something else, and to treat the one category as claiming our assent and the other as open to further evidence. Yet when he sees around him aspirations so fair, impulses so strong, whose receptive faculties are so sensitive as to give objective reality to what is often but a reflex from themselves, or a projected image of their own experience, he will be willing to admit that they are influences which he cannot as yet either fathom or measure, but whose operation he must recognise among the facts of our existence.

The vote of thanks to the President for his able address was moved by the LORD MAYOR of Dublin, and seconded by Dr. LLOYD, the Provost of Trinity College, who in a brief speech commended the President's admirable discourse. The motion was carried by acclamation.

SECTION A—MATHEMATICAL AND PHYSICAL SCIENCE.

This section was presided over by the Rev. Professor SAMUEL HAUGHTON, owing to the absence of Prof. Salmon, through an accident. Everyone, said Prof. Haughton, who had studied the applications of mathematics to nature would know that no problem in nature was unsolvable. They could all be brought under the domain of figures, and when the class of problems in which integrations and finite differences could be used were considered, then it would be understood how great a debt was owed to mathematics for inventing the various tables and formulas which to many persons appeared to interest only a few. He would carry his ideas of mathematics so far as to say that there was no branch of science that must not in the long run become subject to it. The test of the real position of any branch of physical science was how far it was under the control of mathematical symbols. One by one the students of physics were trying to bring different sciences more and more under control. Prof. Sylvester had prepared for this section a paper which would prove a remarkable step in this direction. All who had studied chemistry knew that that science was obedient to numbers. The doctrine of atomic weights and equivalents showed that chemistry was on the borders of being subject to mathematics. Its combinations in the long run would only be a branch of molecular physics, and the efforts already made were day by day clearing away the darkness that surrounded infinitely small particles of matter. Some very remarkable efforts had recently been made by German physiologists to bring not merely anatomical details, but even some physiological questions, under the domain of pure mathematics. In the last century medical men carried this idea too far. They made the whole man a sort of hydrostatic machine. After that a reaction set in, and the school of the Vitalists came into play. But now another reaction had commenced, particularly in Germany, and he believed at a time not far distant a successful attempt would be made to bring portions of physiology and the whole of anatomy under the control of the mathematical section. The speech was most humorous and entertaining all through, and quite refuted any opinions that might have been formed that every reference to mathematics must of necessity be uninteresting. In conclusion, the learned Professor, in the name of Trinity College, expressed the pleasure with which he welcomed the section within their walls. He need scarcely say that in Trinity College every branch of knowledge, literary and scientific, was cultivated. Personally, he was deeply indebted to the undeserved kindness of his old tutor, Dr. Salmon, for asking him to take his place this morning.

SECTION B—CHEMICAL SCIENCE.

The President of this section, Prof. MAXWELL SIMPSON, M.D., F.R.S., in his opening address remarked that it would be difficult to over-estimate the value and extent of the knowledge we derive from chemistry. Without it we can know nothing about the air we breathe, the water we drink, or the food we eat; we cannot understand the process of combustion, respiration, fermentation, putrefaction, or the endless chemical changes which are continually in operation around us, and which affect our lives for good or for evil. In a word, the whole of the phenomena of nature must for ever remain to us, more or less, an inscrutable mystery. Again, is it not desirable that we should have some acquaintance with the chemical arts from which we derive so many of our comforts and luxuries? Should we not know something of the arts of photography, dyeing, metallurgy—something of the manufacture of glass and china, and of the thousand beautiful things that are constantly in our hands? Not only is the knowledge we obtain from chemistry very considerable in itself, but it furnishes us with a key which enables us to unlock vast stores of knowledge contained in several other sciences—these are physics, geology, mineralogy, physiology, and, I may now add, astronomy. Physics and chemistry are so intimately connected that it is difficult to say where the one begins and the other ends. The help that chemistry gives to physics is shown by the number of chemists who have distinguished themselves as physicists. I may mention a few belonging to our own time—Andrews, Bunsen, Faraday, Frankland, Graham, Guthrie, and Regnault. With regard to mental discipline, the mind of the student is exercised in both the inductive and deductive methods of reasoning. His original faculties are stimulated by the consciousness that he can in many cases readily test the worth of his ideas by experiment. With inexpensive apparatus and a good balance the intelligent student can make out for himself some of the laws and many of the facts of science, and it may be also add to them. He glides insensibly from the known to the unknown. Indeed, his spirit of enquiry demands in most cases to be curbed rather than spurred. Some students are constantly finding out new methods of analysis or discovering the precious metals in impossible places. The readiness with which we can cross over into the *terra incognita* of chemistry, and make little explorations there, constitutes, in my opinion, the great charm of this science, and to a great extent its value as an educational agent. What I wish to insist upon is that the student of chemistry can reach the field of original work sooner than the student of most other sciences. Once he commences original research the development of his intellectual faculties rapidly progresses. His imagination is daily exercised in propounding new theories, and devising experiments in order to ascertain their truth or falsehood.

And what more valuable intellectual training can there be than the habit of subjecting our ideas to the test of inexorable experiment? In the world outside chemistry we are, alas! too ready to take things for granted. The chemist's motto is "Prove all things." The ancients adopted a different method. They assumed certain principles and reasoned from them They, therefore, did little in science. Chemistry promotes in a remarkable manner accuracy, thoroughness, and circumspection. An organic analysis requires six weighings; if any one of these is inaccurate the results are worthless. A qualitative test carelessly applied may cause us in a research to waste months in the pursuit of a phantom or Will-o'-the-Wisp which can have no corporeal existence. If we have to employ absolute alcohol in our experiments we must not be satisfied with going through the ceremony of making it absolute, but we must assure ourselves that it is absolute. Unless we are sure of every step in our research our results become doubtful, and, therefore, of no value. On the circumspection also of the original worker large demands are made. The avenues by which error may creep in and vitiate his results are very numerous. These he must foresee and endeavour to close up. Laboratory work teaches us to use our senses aright, sharpens our powers of observation, and prevents us from reasoning rashly from appearances. It also promotes manual dexterity, and trains the hands to work in subordination to the head. Perhaps in no other science is the student so deeply impressed with the order and economy of Nature, the immutability of her laws, and the exactness of her operations.

Many virtues are necessary to the chemist—courage, resolution, truthfulness, and patience. He is often obliged to perform experiments which are attended with great danger, and no man can hope to fight long with the elements without carrying away many a scar. But the chemist must not be discouraged by fear of accident, neither must he be disheartened by the temporary failure of his experiments, nor at the slowness of his processes. Bunsen was obliged to evaporate 44 tons of the waters of the Durcheim springs in order to obtain 200 grains of his new metal, Cæsium. It took Berthelet several months to form, by a series of synthetical operations, an appreciable quantity of alcohol from water and carbon, derived from carbonate of baryta. Many years ago, in the laboratory of Wurtz—my honoured master—a poor student whom I knew was carrying from one room to another a glass globe, which contained the product of a month's continuous labour, when the bottom of the globe fell out, and the contents were lost. Nothing daunted, he recommenced his month's work, and brought his research to a successful issue. Above all things the chemist must be true. He must not allow his wishes to bias his judgment, or prevent him from seeing his researches in their true light. I am glad to see that the importance of original research as a part of higher education is at last beginning to be recognised in this country. The Royal University Commission at Oxford has recently recommended that candidates for the higher degrees in science shall in that University be required in future to work out an original investigation. In Germany, where education has been so long and so well understood, original work has been for at least the last half century a *sine qua non* for a degree.

Referring to the inadequate recognition of physical science as an essential branch of higher education, Dr. Simpson remarked that is much to be regretted that the Universities of Oxford and Cambridge, with such splendid revenues at their disposal, should contribute so little to the advancement of physical science. I hope the day is not far distant when the fellowships—or at least a few of them—which now go to reward young men for merely passing a good examination, shall be given without examination to men who shall have advanced human knowledge in any department. At present a fellowship of 250*l.* or 300*l.* a-year lasting ten or twelve years, and in some cases for life, may be obtained on the candidate showing proof of a good memory—or, at most, a capacity for assimilating other men's ideas. To make discoveries, to follow out a new train of thought, and establish it by experiments specially devised to that end, has been left not only without reward, but almost without recognition in our two principal seats of learning. Is it to be so always? The world at large, ignorant as it is, has a sounder instinct on this subject, and the man who makes the humblest addition to the stock of knowledge in the world rarely fails to receive the world's respect and honour. The suggestions I have ventured to make could not, of course, be well carried out unless the Government take into its own hands the appointment to all Scientific Chairs. Of this I think I see indications. I believe that sooner or later the Government will assume the supreme direction of education in this country. It has already taken Primary education under its control, and quite recently, here in Ireland, Intermediate Education to a great extent. And does the appointment of so many Universiry Commissions not show a disposition on the part of the Government to assume the direction of Higher Education also?

SECTION C.—GEOLOGY.

The President of this section was Mr. JOHN EVANS, D.C.L., F.R.S., whose inaugural address was of an interesting and exhaustive character. He could not but call attention to the fact that this was the third time the Association had met in Dublin, its first meeting there having taken place in the year 1835, or 43 years ago. On that occasion, as, indeed, for many years afterwards, the two distinct, though to some extent cognate branches of study—geology and geography—were classed in the same section, and its president was a man of whom Irish science may well be proud, and who, I am thankful to say, is still living to enjoy his well-deserved honours—the veteran geologist, Sir Richard John Griffith, the author of the first geological map of Ireland. It seems hardly credible that the construction of this map was commenced in the summer of 1812, or 66 years ago, but the records of the Geological Society of London testify to the still more remarkable fact that Sir Richard Griffith was elected a fellow of that society in 1808—70 years ago. Indeed, in 1854, when the Wollaston medal was awarded to the then Dr. Griffith, the president—the late Professor Edward Forbes—spoke as he said reverentially to one of the earliest members of the society, and to a geologist who appeared in print before he (the president) was born. It was well said on that occasion that the map lately mentioned was one of the most remarkable geological maps ever produced by a single geologist, and I make no doubt that those who are at present engaged on the Geological Survey of this island will testify, as did their predecessors, to the value of this "surprising monument of observation and skill." When speaking of the Geological Survey of Ireland, it will not, I am sure, be thought out of place if I offer here a tribute of respect to the memory of one who was originally a student in the college within whose walls we are assembled, and who subsequently occupied posts of the highest importance in connection with the Geological Society of Dublin and the Geological Survey of Ireland, besides filling the professorial Chair of Geology in this University—I mean Dr. Thomas Oldham, the late Director of the Geological Survey of India. With the marvellous amount of work which he was enabled to accomplish in that country you are all acquainted, and you will all share in the regret that the period of his well earned retirement—that "requires optimorum meritorum"—should have been so quickly cut short by death. His name will, however, long survive, and future students of geology will have no difficulty in recognising the distinguished labourer in their science after whom the Cambrian Oldhamia of the Wicklow hills so worthily received its name.

Dr. EVANS then proceeded to give a complete outline of the result of geological research, especially mentioning the branches of science which could be best studied from a consideration of the geology of Ireland. He remarked that he hoped that under the guidance of Mr. Richard Moss they would have an opportunity of seeing the megaceros Hibernicus in the position in which they were originally interred, and it will be an interesting question for consideration whether these remains can be regarded as of the same geological age as those of the English caves and river gravels, or whether they do not for the most part belong to what Prof. Boyd Dawkin has termed the Prehistoric period. It seems by no means improbable that this gigantic stag survived in this country for ages after he had become extinct in other lands, and that the view held by Prof. Hull, of his extinction being due to persecution by man is correct. If this be, so it would seem to follow that the human occupation of Ireland is of far more recent date than that of the sister country. And this brings me to one of those questions which have of late been occupying the attention of geologists. I mean the date which is to be assigned to the implement bearing beds of Palæolithic age in England. Dr. James Geikie has held that for the most part they belong to an interglacial episode towards the close of the Glacial period, and regards it as certain that no Palæolithic bed can be shown to belong to a more recent date than the mild era that preceded the last great submergence. His follower—Mr. Skertchly—records the finding of Palæolithic implements in no less than three interglacial beds, each underlying boulder clays of different ages and somewhat different characters, the Hessle, the purple, and the chalky boulder clay. This raises two main questions—first, as to how far Dr. Croll's theory of the great alternations of climate during the Glacial period can be safely maintained; and, secondly, how far the observations as to the discovery of implements in the so-called Braudon beds underlying the chalky boulder clay can be substantiated. Another question is how far the Palæolithic deposits can be divided into those of modern and ancient valleys, separated from each other by the purple boulder clay, and the later of the two older than the Hessle beds. It would be out of place here to discuss these questions at length. I will only observe that, in a considerable number of cases the gravel containing the implements can be distinctly shown to be of much later date than the chalky boulder clay, and that if the implements occur in successive beds in the same district, each separated from the other by an enormous lapse of time, during which the whole country was buried beneath incredibly large masses of invading ice, and the whole mammalian fauna was driven away, it is a very remarkable circumstance.

Referring to the discovery of Palæozoic rocks under London, Dr. Evans remarked that so long ago as 1856 the Kentish Town boring had shown that immediately below the Gault red and variegated sandstones and clays occurred, which Prof. Prestwich regarded as probably of Old Red or Devonian age. The boring of Messrs. Meux and Co. has now shown that under Tottenham Court-road, at a depth of little more than 900 ft. from the surface, there are true Devonian beds, with characteristic fossils, and that Mr. Godwin Austen's prophecy of the existence of Palæozoic rocks at an accessible depth under London has proved true. Prof. Prestwich, from a consultation of the French and Belgian coal fields, inclines to the belief that in the district north of London carboniferous strata may be found. Unfortunately the expense of conducting deep borings, even with the admirable appliances of the Diamond Boring Company, is so great that I almost despair of another experimental borehole like that carried out in the Wealden district under the auspices of Mr. Willett, being undertaken. In the department of theoretical geology I would call your attention to some experiments by M. Daubree, of which he has given accounts at different times to the French Academy of Sciences. In these experiments he has attempted to reproduce on a small scale various geological phenomena, such as faulting, cleavage, jointing, and elevation of mountain chains.

With regard to recent progress in palæontology he must venture to refer to Prof. Alleyne Nicholson's inaugural address lately delivered to the Edinburgh Geological Society, but I cannot pass over in silence the magnificent discoveries in North America, which are principally due to the researches of Professors Marsh, Leidy, and Cope. The diceratherium, a rhinoceros with two horns placed transversely, and the dinoceras, somewhat allied to the elephant, but with six horns, arranged in pairs, are as marvellous as some of the beasts seen by Sir John Maundevile on his travels, or heard of by Pliny. But perhaps the most remarkable series of remains ever discovered are those which so completely link the existing horse with the eohippus and orohippus, and still further extend the pedigree of the genus equus, which had already been some years ago so ably traced by Prof. Huxley. One of the most important features insisted on by Mr. Gaudry is the development of the complicated molars of most mammals. His view is that by a comparison with early and with fœtal forms the probability may be shown of these compound teeth being made up of what in earlier forms were simple teeth—or, as he has termed them, denticules—which have coalesced in the same manner as have some other parts of the normal bony skeleton. In the compound teeth the denticeles in some cases preserve their original conical form, as in the pig tribe; in others are elongated transversely, so as by their junction to form ridges, as in the tapirs; while in others, again, they are drawn out in longitudinal crescents, as in the ruminants. Between these forms there are, of course, innumerable transitions. They do not, however, appear to me to affect the importance of Mons. Gaudry's observations, which must be regarded as of the highest value in all attempts to trace the inter-relation of different forms of mammalian life.

The discoveries of early forms of birds with teeth do not come within Mr. Gaudry's province; but Prof. Marsh has added to our knowledge of these remarkable forms. The Tertiary Odontopteryx toliapicus from Sheppy, described by Prof. Owen, seems rather to be endowed with bony tooth-like processes in the jaw than actual teeth, and the head of the Argillornis from the same locality is at present unknown. But the Hesperornis and Ichthyornis from the cretaceous beds of America possess veritable teeth, in the one case set in a long groove in the jaw, and in the other in actual sockets. Such intermediate, or, as Prof. Huxley would term them, intercalary forms, tend materially to bridge over the gap which at first sight appears to exist between reptiles and birds, but which to many palæontologists was far from being impassable, long before the discoveries just mentioned. The amphicœlous character of the vertebræ of ichthyornis presents another most remarkable peculiarity, which is also of high significance. I hear rumours of the discovery of another archæopteryx in the Solenhofen slates, which is said to present the head in a much more complete condition than that in which it occurs on the magnificent slab now in the British Museum. And yet, I believe, the jaws have not had the matrix removed from them; but should they prove to be armed with teeth it will to me be a cause of satisfaction rather than surprise, as confirming an opinion which some fifteen years ago I ventured to express, that this remarkable creature may have been endowed with teeth, either in lieu of or combined with a beak.

SECTION D.—BIOLOGY.

DEPARTMENT OF ZOOLOGY AND BOTANY.

The inaugural address of Prof. W. H. FLOWER, F.R.S., the President of this section, was listened to throughout with marked attention. Exactly a century has passed since Linnæus died. What

of the progress of the subjects to which he devoted his long and laborious life? It may be not without interest in commencing our work at this meeting to cast our eyes back and take stock, as it were, of the knowledge of a hundred years ago and of that of the present time, and see what advances have been made; to look at the living world as it was known to Linnæus and as it is known to ourselves. The "Systema Naturæ," the last edition of which, revised by the author, was published in 1766, will be a convenient basis for the comparison. In taking the "Systema Naturæ" of Linnæus the comparison is certainly carried back somewhat beyond the hundred years which have elapsed since his death, and the brilliant contributions to the knowledge of the Mammalia of Buffon and Daubenton just then beginning to be known, and the systematic compilation of Erxleben (published in 1777), are ignored; but for the present purpose, especially considering the limited time at my disposal, it will be best not to go beyond the actual text of the work in question.

Now we know that the annuals at present existing upon the earth are merely the survivors of an immensity of others, different in form, characters, and mode of life, which have peopled the earth through vast ages of time, and to which numerically our existing forms are but infinitesimally small, and that the knowledge we possess of an immense number of them fully justifies the expectation of an enormous further advance in this direction. In the time of Linnæus the existence in any past time of a species having no longer living representatives on the earth, though perhaps the speculation of a few philosophical minds had not been received among the certainties of science, and at all events found no place in the great work we are now considering. In the twelfth edition of the "Systema Naturæ" we find the class Mammalia divided into seven orders—I. Primates.—II. Bruta.—III. Feræ.—IV. Glires.—V. Pecora.—VI. Bellum.—VII. Cete. These orders contain 40 genera, without any intermediate subdivisions. The genera are again divided into species, of which the total number is 220. The first order:—Primates, contains four genera—Homo, Simia, Lemur, and Vespertilio. The vexed question of man's place in the zoological system was thus settled by Linnæus. He belongs to the class Mammalia, and the order Primates, the same order which includes all known monkeys, lemurs, and bats; he differs only generically from these animals. But then we must remember that the Linnæan genera was not our genera; they correspond usually to what we call families, sometimes to entire orders. So that practically man's position is much the same as that to which, after several vicissitudes, as his separation as an order by Blumenbach and Cuvier, or as a sub-class by Owen, he has returned in the systems of nearly all the zoologists of the present day who treat of him as a subject for classification upon zoological and not metaphysical grounds. Yet since the time of Linnæus the whole science of anthropology has been created.

The scientific study of the natural history of man is, therefore, we may say but one century old. It is true that, as shown in the most interesting story of the gradual development of our knowledge relating to them in the first chapter of Huxley's "Man's Place in Nature," the animal now called gorilla was, without doubt, the pongo, well known to and clearly described by our countryman Andrew Battle, a contemporary of Shakspeare, and that a really accurate and scientific account of the anatomy of the chimpanzee had been published as far back as 1699 by Dr. Edward Tyson, who, as the first English comparative anatomist, I am proud to claim as in some sort a predecessor in the chair I have the honour to hold in London, as he is described on the title-page of his work as "Reader of Anatomy at Chirurgeon's Hall." Linnæus was, however, not acquainted with these, and his second species of the genus Homo, H. troglodytes, and his first of the genus Simia, S. satyrus, were both made up of vague and semi-fabulous accounts of the animals now known as chimpanzees and ouangs, but hopelessly confounded together. Of the gorilla, and what is stranger still, of any of the large genus of gibbons or long armed apes of south-eastern Asia he had at the time he revised the systema no idea.

There is a kind of classification such as we might apply to inanimate substances or manufactured articles. We may say, for instance, that a tumbler, a wine-glass, and a tea-cup are more closely related to each other than either is to a chair or a table, and that they might be formed into one group, and the last-named objects to be placed in a second. This kind of classification is certainly useful in its way, for methodical arrangement and descriptive purposes. It is the kind of arrangement which Linnæus and his contemporaries applied to animals. It is, however, a very different classification from that which supposes that the members of a group having common essential characters are descended from a common ancestor, and have gradually, by whatever cause or means, become differentiated from other groups. On this view a true classification, if it could be obtained, would be a revelation of the whole secret of the evolution of animal life, and it is no wonder that many are willing to devote so large a share of their energies to endeavour to attain it. The right application of the principles of nomenclature, first clearly established by Linnæus to the groups we form is, again, by no means to be despised, as laxity and carelessness in this respect are becoming more and more the greatest hindrances to the study of zoology. The introduction of any new term, especially a generic name, and indeed the use of an old one by any person whose authority carries weight, has an appreciable effect upon the progress of science, and should never be done without a full sense of the responsibility incurred. All beginners are puzzled and often repelled by the confused state of zoological nomenclature to an extent to which those who have advanced so far as only to care for the things, and to whom the actual names by which they are called are comparatively indifferent, have little idea.

Those whose special gift or inclination leads them to the pursuit of other branches of biology, as morphology, physiology, embryology, &c., must have definite names for the objects they observe, depict, or describe, and are dependent upon the researches of the systematic zoologist for supplying them, and should not neglect to take his counsel, otherwise much of their work will lose its value. Several times has the British Association thought this a worthy subject for the consideration of its members, and through the instrumentality of a committee of working naturalists drew up in 1842 an excellent code of regulations and suggestions on the subject of zoological nomenclature. These rules were revised and reprinted in 1865, and in accordance with a resolution adopted at the last annual meeting at Plymouth they have been again republished at the cost of the Association during the present year. The mere issue of such rules must have had a beneficial effect, as they have undoubtedly been a guide to many careful and conscientious workers. Unfortunately, there are no means of enforcing them upon those of a different class, and there is still something wanting short of enforcing them which possibly it may be within the power of the Association to effect. In the administration of the judicial affairs of a nation, besides the makers of the laws, we have an equally essential body to interpret or apply the law to particular cases—the judges. However carefully compiled or excellent a code of regulations may be, dubious and difficult cases will arise to which the application of the law is not always clear, and about which individual opinions will differ. The necessary permission given in the Association rules to change names, which are either "glaringly false" or "not clearly defined," opens the door to considerable latitude of private interpretation. As what we are aiming at is simply convenience and general accord, and not absolute justice or truth, there are also cases in which the rigid law of priority, even if it can be ascertained, requires qualification, and other cases in which it may be advisable to put up with a small error or inconvenience to avoid falling into a larger one.

DEPARTMENT OF ZOOLOGY AND PHYSIOLOGY.

The opening address was delivered by Dr. R. McDonnell, who remarked that since the Association met 12 months ago the science of physiology has suffered an irreparable loss. In February last, Claude Bernard died, in the 65th year of his age. He was interred with a degree of pomp never in this country, and rarely even in France, accorded to men of science. His country showed how highly and how justly they estimated the merit of a man who, gentle, unobtrusive, modest, by the greatness of his genius and the brilliancy of his many discoveries, shed a lustre on the land which gave him birth. Claude Bernard, in truth, left his mark deeply on every aspect of physiology on which he touched. His discoveries, however, as regards the functions of the pancreas, of the liver, and concerning the vaso-motor system of the nerves are those on which his fame will ever chiefly rest. It is not too much to say that prior to the communications made by Bernard to the Society de Biologie little or nothing definite was known of the normal action of the pancreatic fluid. Even a popular audience can form a judgment as to the practical value of Bernard's researches in this direction. Before the publication of his memoir the fluid secreted by the pancreas was regarded as something destined to dilute the bile and render it less acrid—its true action as a liquid taking a special and active part in the digestion of particular kinds of food was, we may say, unknown. Bernard was the first physiologist who obtained pure, healthy pancreatic fluid from a living animal. It was he who showed its reaction. He demonstrated its extraordinary digestive power, not only over fats, but over other alimentary matters. He proved it to be the only one of the digestive liquids which at once forms a complete and permanent emulsion with fats. It is true Dr. Richard Bright had before (in 1832) observed fatty diarrhœa as existing in cases of organic disease of the pancreas, but, in fact, his observations were barren, and did not serve to direct attention to the action of the pancreatic fluid in digestion until after Bernard's discoveries threw additional light on the question. Bernard's researches on this subject have been so thorough and complete that he has left little to be learned.

As regards the work accomplished by the liver in the animal economy, Bernard did nearly as much as he did for the pancreas. As everyone knows, the liver is a large organ; it performs duties the importance of which to the health and happiness of mankind can hardly be over-rated. Yet up to the year 1857 medical men were in absolute ignorance of one half of what the liver does. They knew that it secreted bile; it was reserved for Bernard to discover another and no less important function hitherto unknown. It is certain, however, that it does other work little, if at all, inferior in importance to the formation of biliary matters, and quite as necessary to the maintenance of health. Its power of making and storing up for a time within its cells a material resembling starch, constitutes, without doubt, one of its most important functions. This no person will for a moment doubt who takes the trouble of ascertaining, by experiment, the immense increase or diminution in bulk which the liver may be made to undergo in the space of a few days by such changes of diet as increase or diminish the amount of this starch-like material in its tissues. It was in March, 1857, that Bernard announced the important discovery of a material formed by the liver, closely resembling starch, or rather dextune, of vegetable origin, and, like it, readily changed into sugar in the presence of ferments.

It would be difficult to imagine a discovery more extended in its applications. In the course of his investigations on this subject Bernard showed the influence of diet, of digestion, of inanition upon this function of the liver. He showed the influence of the nerves and nevous centres in relation to it. He made the important discovery of the production of diabetes certificially. He was led to discover a similar function as regards the formation of amyloid substance on the placenta. He built up an entirely new theory of diabetes, fundamentally changing the view hitherto held on this subject; and, in short, made the whole field his own. It is obvious to every one who allow themselves calmly to reflect for a moment that no physician can be a good practitioner who does not know something of the work done and the duties performed by the heart, or the stomach, or the lungs, &c., in a healthy state. Diseases are deviations from health; to understand the one it is necessary to know something of the other. It must appear quite puerile, therefore, to any thinking person the assertion that the discovery of an important new function in a great organ like the liver did not modify the practice of medicine and throw new light on disease, not of the liver alone, but throughout the whole frame.

It would be unjust to others to say that Claude Bernard was the sold discoverer of the vaso-motor nervous system as it is called. It would be equally unjust to his memory not to admit that his researches had a large share in this discovery. Pourpour du Petit and Dupuy had, no doubt, long since divided the cord of the great sympathetic nerve in the neck, and noticed some of its consequences. But the real discovery of the vaso-motor nervous system was reserved for our time. The illustrious physiologist, Dr. Brown-Sequard, who fills the chair in the College de France, rendered famous by such predecessors as Bernard, Majendie, and Laennec, has no small share in this discovery, and as regards its application to the explanation of the phenomena of disease and its treatment, has accomplished more than any of his predecessors.

We owe to Bernard the discovery of the principal results due to division of the cervical portion of the sympathetic; assured by the discovery is one in which experimental physiology has reason to triumph, for it must be regarded as one of the most valuable disclosures of modern science. It cements together the vast number of isolated facts, which, since the days of Prochaska and Robert Whytt, have been accumulating upon the hands of physiologists, but which in the length and breadth of their importance even Marshall Hall himself did not appreciate. But let us turn to the other half of this experiment; let me remind you that Dr. Brown-Siquard in America, Professor Claude Bernard in Paris, and Dr. Augustus Weller in England almost simultaneously observed that galvanisation of the divided sympathetic is followed by a reversal of all the phenomena which have been already noticed to follow its division—the vessels contract, heat diminishes, secretion is checked.

These experiments are illustrative of the influence of the nervous system over the vascular. They have formed the bases of physiological theories very widely differing from each other, and perhaps less striking, but not less valuable experiments, bearing on the same subject. The muscular tunic of the vessels which ramify through the body places them under the control of the nervous system as completely as that of the heart itself. As the muscular structure of the heart, so the muscular structure of the vessels is subject to emotional and reflex influences. It is not only the blood vessels of the cheeks which blush. The greater development of the muscular tunic in the vessels of glands and of the brain, shows that in those situations the arrangements for controlling the blood supply are even more complete than elsewhere. It is true that it has long been known that intimate relations exists between organs more or less remote from each other. The term sympathy has long been in use, and equally applied to the healthy functional activity as to the pathological disturbances of organs distinct from each other. In the eyes of the practitioner the morbid sympathies (or reflex disturbances) such as occur in teething children, or later in life from irritation of the gastro-intestinal or genito urinary systems, &c., have naturally eclipsed in interest the normal physiological sympathies, such as that between the uterus and mammary gland, the mucous membrane of the tongue and the salivary glands, &c. But be it remembered that they are closely kindred phenomena, similar in mechanism, and, in fact, often passing into each other so gradually that is impossible to say where the normal terminates and the morbid begins." It is hardly possible to conceive any kind of research which bears more closely than these upon the various maladies that flesh is heir to.

DEPARTMENT OF ANTHROPOLOGY.

The leading feature in this department was, of course, the address of Prof. Huxley. He said that he might address himself to the substance of this department, which forces itself, more or less, on the attention of everybody, and which (unless in the instinct of your human nature are less marked than those of others) may possibly have something to do with the large audiences which we are always proud to see in the anthropological department. In the geological section there are *loci* of disturbance on the earth surface, and we hear of parts of the world—the *loci* of disturbance—where everything in the form of disturbance has subsided, while in other parts of the world the causes of disturbance are in action. Antrim, for instance, in past ages, was a great centre of physical disturbance; but we all know that at the present time the earth's crust—at any rate in Antrim—is quiet; while the great centres of local disturbance are in Sicily, Southern Italy, in the Andes, and the like. My experience, he continued, of the British Association does not extend over a geological epoch, but it goes back much further than I wish to say. I remember when the *locale* of disturbance at the meetings of the British Association was the geological section—all kinds of things were being said there about the antiquity of the earth, and they gave rise to such terrible apprehensions that some people thought the world was coming to an end. Such apprehensions as the inhabitants of Antrim must have entertained when by the force of volcanic action streams of lava burst out they must have thought the whole universe was coming to pieces.

At the present time the loci of disturbance were to be found not in the geological but in the palœontological, and more especially in the anthropoligical section. History repeats itself. The greatest apprehension is at present expressed by persons who attend our deliberations here—apprehensions with regard to questions of morality and religion, but I do not think that should be the case; depend upon it that whoever 30 years hence will be present in this department will find themselves exactly as the members of the Geographical section of a past period now find themselves. What are our paradoxes and the horrible things we say, and our conclusions which are supposed to shake the foundations of the world, will become part of the knowledge of everybody, and will be taught in our schools as accepted truth, and nobody will be one whit the worse. The points which I think it desirable to put before you, in order that I may in a few words express the foundation of my confident conclusions, are these:—The first is a reason based entirely upon philosophic consideration—that regions of pure physical science, and the regions of what especially constitutes humanity; that the conclusions reached by the one can have no direct effect on the other. If you acquaint yourselves in the slightest degree with the history of philosophy, and the variations of human opinion, you will find that speculative difficulties have given way. Whoever admits the existence of evil in this world, and the law of causation, has before him all the difficulties that can be raised by any form of scientific investigation, and these truths have been present to the mind of man since the mind of man began to think. The next consideration I have to put before you is that whatever be the results of physical research as to the mind of man they arise out of the necessary progress of scientific thought as applied to man.

You all heard in the excellent address of Dr. Flower the marvellous progress that has been made in our knowledge of animals since the time of Linnæus. The merest tyro in the science now knows a thousand times as much as did Linnæus. If you consider what zoology, or the study of animals, means—it means the endeavour to ascertain all that can be studied in reference to animals from four different points of view. The first embraces the consideration of the structure and the mode of development; in the second place, every animal exhibits a great number of active powers, and in this we have to include the enormous light that has been thrown on the subject by Dr. M'Donnell. We have to take in other kinds of activity, such as I see announced in the zoological section, where a highly interesting paper on ants will be read by Sir John Lubbock for the purpose of showing the amount of intelligence possessed by the lower animals. There was a third point of view in which they should regard every animal, and it was this—that it was to be found somewhere, that it had a distribution, and that the great majority of animals had a past history. All those are legitimate subjects of inquiry.

If it were true, as Sir John Lubbock would point out, that ants manifested such a sentiment, he would have made a great and interesting discovery, and no one could doubt the ascertainment of the fact was completely within the province of zoologists. So, in the same way, anthropology has nothing whatever to do with the truth or falsehood of the different religious systems. It holds itself aloof from these, but the origin and growth of religions and the different forms of religion—these are its proper and legitimate province. I go a step further, and pass to the distribution of man. This, of course, for the anthropologist is in his special region. He endeavours to ascertain what kind of human race these are. He enquires how far the remains of man may be traced—how far the human race goes back into time—how far the horse can be traced—and the kind of evidence which is good in the one is good in the other. It is the business of the anthropologist to be serene in his criticism in respect to the origin of man, as it is the business of the palæontologist as regards another form of life. To the scientific mind there is no difficulty in drawing correct conclusions in one case as in the other. And if anyone should turn outside the line of scientific evidence, and endeavour to support or oppose the conclusions based on distinct and scientific truth by considerations which are not in any way based on scientific knowledge, and occupying the chair of the sec. should feel called on to call him to order, and tell him he was dealing with matters with which he had no concern whatever.

On this subject, as in many others, a great stimulus to man's reasoning, a complete metamorphis in the direction of modern investigation, has been given by the publication of a single book, the "Origin of Species." It was only subsequent to the publication of the ideas contained in that work that one of the most powerful agencies for the advancement of anthropology was founded in Paris, and also the great Anthropological Society of Berlin; until it may be said there is now no branch of science which is represented by a larger or more advanced body of workers than this science of anthropology, and the whole of these workers are engaged, more or less, in the working out of the ultimate goal, the great problem, the great ideas which Darwin put forward in regard to the animal world are capable of being applied in the same sense to man. That question, I need not say, is not answered. It is an enormous question, and one to which a definite answer may be looked for possibly in the next century.

But the method of enquiry is understood, and the material are now being accumulated bearing on that enquiry. The plausability with which results are now obtained, the observation of all these phenomena tend to the belief that that problem also will some day or another be solved. I cannot undertake to determine in what scientific method that question will be solved. If you ask me what has been done within the past 20 years towards the solution of that problem and clearing the ground in the direction of obtaining a solution of it, I do not know that I could lay my hand on much remarkable method of investigation, except with regard to one point. I have some reason to know that, about the year 1860, there was nothing more volcanic, nothing more shocking, nothing more subversive of everything right and proper than the proposition put forward, that so far as the physical organisation is concerned there is less difference between man and the highest ape than there is between the highest ape and the lowest. That was a very pleasant subject to descant upon. The other day I was reading a very interesting work by an eminent French writer—M. Quatrefage—who has made this question of anthropology a special study, and has written a good deal about it. He has always been a consistent opponent of revolutiouary ideas, so that I turned with some interest to his work, as giving me a record of the progress of opinion within the past 20 years, and to my satisfaction I found that this gentleman entertained a strong bias in the opposite direction to which my mind would lead me. The substance of the opinion is this, that the truth of the proposition I first put before you is one that no rational man would dispute—that is, the difference 20 years has made in this respect, and a great number of anthropologists are prepared to endorse the opinion of Mr. Quatrefage. It is a comfort to have got that much, at all events, out of the way. One of the most singular things is to trace the wonderful persistency of the human mind when it gets into a groove. It stops there. The great object of scientific investigation is to run counter to this tendency. The greatest progress of our knowledge of man is the introduction of man in a fossil state. When any man broached the notion of a fossil man he would be laughed at. It was contrary to any of the preconceived ideas that man could have existed in a fossil state. That idea fixed itself so strongly on men's minds that they thought their eyes the plainest evidence. We have a most attonishing accumulation of evidence of the existence of man in ages antecedent to this. What the exact data is I do not think anyone can say. It is beyond all question that man existed at a time when the whole physical conformation of the country was different to what it is now. Whether the evidence we have justifies in going backward still is beyond that question. That question would be regarded as something startling. But when it comes to a question of tracing back men further than that I must confess that the evidence is to my mind of a very dubious character. We have not at present any positive knowledge on the subject. Then comes a very interesting question, whether with such evidence of the existence of man before us it is possible to trace in that history any evidence of the human type essentially similar to that which exists at the present day. I am free to confess that my opinion on that matter remains exactly what it was some 18 years ago.

I did venture to put forth the opinion that what is common to all such human remains is that they present a most marked and definite trace of what are called the characteristics of a lower type. I must confess that the arguments brought forward to show that the skull is an abnormal skull have no weight whatever with me. From the remains that accompanied the skull of that human being, I must say that so far as all the fundamental points are concerned, they are the same as those of men of the present day, and that that being could wear boots just as well as we. I do not know that there is any more reason for believing that the man who existed in that day could not have been in all respects similar to the man of the present day, than to object to the evidence that the horse which existed in that day was in all respects identical with the horse of the present day. We know that the horse presents a series of modifications and evolutions by which he could be traced back, and it would be just possible to trace back man in the same way.

SECTION E.—GEOGRAPHY.

In opening this section Prof. Sir C. Wyville Thomson, F.R.S., remarked that a flood of light had been thrown by Mr. H. M. Stanley upon Central Africa, and, if they regretted some of the dark scenes by which his terrible march was chequered, no one who had had dealings with savages could fail to understand how entirely the action of a leader, solely responsible for the lives of his party, must be guided in every emergency by considerations which he alone is in a position to weigh. A new factor in all special expeditions sent out is a supply of the means of scientific observation. Prof. Thomson alluded to the voyage of the Austrian frigate Novara, the Italian corvette Magenta, the sounding voyages of the American ship Tuscarora, the Hassler expedition, the Challenger expedition, the voyage of the German frigate Gazelle, the several expeditions to observe the Transit of Venus, the voyage of the Tegethoff (which Lieutenant Payer had rendered memorable), and the thrilling story of the Alert and Discovery. Capt. Markham's sketch of the physical condition of the Arctic Sea he considered most valuable.

The President read a letter from Prof. Mohr, dated Hammerfest, July 10, speaking highly of the service rendered by Negretti and Zambra's new reversing thermometer. That ingenious instrument, he regretted, they had not with them in the Challenger. The present physical condition of the globe depends on the fact that the surface of the world is divided into a land and a water hemisphere. The vast expanse of water which has its centre in the southern hemisphere is the one great ocean of the world, of which the Atlantic, with the Arctic Sea and the North Pacific, are merely northward-extending gulfs. The stratum of water is shallow in proportion to the radius of the earth, but is very definitely split into two layers. At a depth averaging 500 fms. the layer of water is 40° Fahr., and this is the neutral band separating the two layers. Above this band the temperature varies greatly over different areas, the isothermometric lines sometimes tolerably equally distributed, and at other times crowding together towards the surface, while beneath it the temperatare almost universally sinks very slowly, and with increasing slowness to a minimum at the bottom. One of the most singular results of later investigations is that all the vast mass of water—2000 fms. often in thickness below the neutral land—is moving slowly to the northward. Evaporation is greatly in excess of precipitation over the northern portion of the land hemisphere, while over the water hemisphere the reverse is the case. Thus, one part of the general circulation of the ocean is carried on through the atmosphere, the water being raised in vapour in the northern hemisphere, hurried by upper wind currents to the zone of low barometric pressure in the south, where it is precipitated in the form of snow or rain; and, welling thence northwards in the deepest channels on account of the high specific gravity dependent on its low temperature, it supplies the place of the water which has been removed. Evaporation is greatly in excess of precipitation over the area of the Mediterranean, and, consequently, in order to keep up the supply of water to the Mediterranean there is a constant inward current through the Straits of Gibraltar from the Atlantic.

The average depth of the ocean is 2000 fms., and it nowhere exceeds 5000 fms. Within 300 or 400 miles of the shore formations are being laid down, derived mainly from the disintegration of shore rocks; but in the abyssal regions the sounding instrument brings up an extremely fine reddish clay, in great part amorphous, but containing, when examined under the microscope, a quantity of distinctly recognisable particles, organic and inorganic. The organic particles are chiefly siliceous, and for the most part the shells or spines of radiolarians, which are living abundantly on the surface of the sea, and apparently in more or less abundance at all depths. The inorganic particles are minute flakes of disintegrated pumice, and small crystalline fragments of volcanic minerals; the amorphous residue is probably principally due to the decomposition of volcanic products, and partly to the ultimate inorganic residue of decomposed organisms. There is ample evidence that this abyssal deposit is taking place with extreme slowness. The shark's teeth brought up are of an extinct species. So far as we know the deposit being formed at extreme depths in the ocean does not correspond either in structure or chemical composition with any known geological formation. During past geological changes it is probable that the abyssal beds have never been exposed. On the question of an open Polar Sea he considered there were now only two plans of discovery—that of permanent Polar stations, as proposed by Lieutenant Weyprecht, or to run as far north as possible at enormous expense, with a great force of men and abundance of provisions and paraffin oil, and push northwards during the Arctic winter by a chain of communicating stations with ice-built refuge huts.

As to the Antarctic Continent, it appears that the whole of the Antarctic land, low and high, as well as the ice-cap, of which a portion of the continuous continent consists, is bordered to some distance by a fringe of ice, which is bounded to seaward by a perpendicular ice cliff, averaging 230 ft. in height above the sea level. He considered the area round the South Pole to be broken up and not continuous land. In high southern latitudes the icebergs are originally tabular, covered with a layer of the whitest snow, the upper part of the cliff being pale blue. The blue lines are the sections or sheets of clear ice. What is the cause of the uniform height of the southern icebergs? It seems probable that under the pressure to which the body of ice is subjected a constant system of melting and relegation is taking place. As to fauna, recent investigations have shown that there is no depth limit to the distribution of any group of gill-bearing marine animals. Fishes have come up from all depths, and at all depths the whole of the marine invertebrate classes are represented. Within the last decade the advance of knowledge upon the physical geography of the sea has been confusingly rapid. Difficulties have increased from the extreme complexity of the questions, both physical and biological, which have arisen. He trusted in a few years our ideas to the condition of the depths of the sea may be as definite as they are with regard to regions to which we have long had more ready access.

SECTION F.—ECONOMIC SCIENCE AND STATISTICS.

Prof. J. K. Ingram, the president of this section, in his opening address, said that the decline in the credit and influence of political economy appeared to him in a large measure due to the vicious methods followed by its teachers. The distrust of its doctrines manifested by the working classes is, no doubt, in a great degree owing to the not altogether unfounded belief that it has tended to justify too absolutely existing social arrangements, and that its study is often recommended by the influential classes with the view of repressing popular aspirations after a better order of things. And it is doubtless true that some of the opposition which political economy encounters is founded on the hostility of selfish interests marshalled against the principles of free trade, of which it is regarded as the representative. He also pointed out the growing coldness and distrust exhibited by the higher intellects towards political economy, a fact which lies on the surface of things, and shows itself everywhere in contemporary literature.

The largest and most combined manifestation of the revolt has been in Germany, all whose ablest economic writers are in opposition to the methods and doctrines of Ricardo—Rosher, Knies, Hildebrand, Nasse, Brentano, Held, Schmoller, Schaffle, Schönberg, Samter, and others have taken up this attitude. The same views are taken by Luzzati, Forti, and Lambertico, in Italy; by Frederiksen, in Denmark; by De Laveleye, in Belgium; and a corresponding, although not imitative, movement is taking place in this country. Our economists have, he thinks, undeniably been slow in observing the currents of European thought. Whilst such foreign writers as echo the doctrines of the so-called orthodox school are read and quoted in England, the names of those who assume a different and more independent attitude are seldom heard, and their works appear to be almost entirely unknown. But no really vital body of opinion can now exist abroad without speedily disturbing our insular tranquility; the controversy, therefore, as to the methods of economic research, and its relations to sociology, as a whole cannot long be postponed amongst us.

SECTION G.—MECHANICAL SCIENCE.

The president of this section was Mr. Edward Easton, C.E., and his opening address displayed a large amount of labour and research. It is worthy of remark that it was on the occasion of the first visit of the British Association to this city in the year 1835 that the mechanical section was virtually instituted. By the conservancy of rivers and streams I mean the treatment and regulation of all the water that falls on these islands from its first arrival in the shape of rain and dew to its final disappearance in the ocean. The question of the conservancy of rivers and streams involves the consideration of their regulations for the following principal purposes:—1. For the supply of pure and wholesome water for the domestic and sanitary wants of the population.—2. For the supply of water of proper quality and sufficient quantity for industrial purposes.—3. For the proper development of water-power.—4. For the drainage and irrigation of land.—5. For navigation and commerce.—6. For the preservation of fish.

In the early days of the world's history there were attempts to regulate and control the waters of rivers—some of them devoted to military and dynastic objects, but the majority to generally useful ends. Herodotus, speaking of Semiramis

who lived some 2000 years B.C., tells us that she raised certain embankments, well worthy of inspection, in the plain near Babylon to control the River Euphrates, which till then used to overflow and flood the country round about. Passing to Greece perhaps the most wonderful instance of the successful regulation of water is to be found in the subterranean channels (the modern Greek Katabothra) by which the waters of the River Cephisus are carried through Lake Topolais (the ancient Copais) into the sea. These tunnels, which are partly natural and partly artificial, have always served to prevent the lake overflowing the adjoining country. The well-known tunnel, or emissarium, from the Alban Lake is an example of Roman work. This tunnel, of a man's height, and cut through 6000 feet of lava, is said to have been begun in obedience to the Delphic oracle in the sixth year of the siege of Veii, B.C. 398. The supply of water to different cities of the ancients has been the motive for the execution of the most stupendous works, which are almost numberless. It is sometimes asserted that the ancients were ignorant of the hydrostatic law that water finds its own level. This is not the case. The aqueduct which Herod is said to have constructed for the supply of Jerusalem crossed a deep valley (near Rachel's tomb) by means of a stone pipe working under pressure. This work has been fully described by Mr. Telford Macneill in the report make by Sir John Macneill to the committee for supplying Jerusalem with water.

The Arabs at a later period not only knew of this law but also understood the operation of what we engineers call the "hydraulic mean gradient." In Britain the Romans constructed many embankments for the control of rivers, but after their time very little was done in the way of great public works of this description; and it was not until the beginning of the sixteenth century that the state of the rivers in Italy commanded the attention of the great landowners and scientific men of that country. After the drainage of the fens the next great works in England were the canals, which in a very few years extended over the whole of England, and formed a complete system for the conveyance of traffic. Legal enactments for the regulation of rivers, and for defining the rights of property in water, have existed from very early times. Solon laid down that to intercept the supply or to corrupt the quality of the water is a crime. The Pandects of Justinian, which are a collection of all the old legal authorities of Roman law, analogous to our own reported cases, contain a variety of leading principles which govern the administration of the law of running water—principles identical mainly with that of our own common law. The earliest record in our own statute law of any enactment relating to rivers is that contained in 25 Edward III. c. 4, which legalised all "gorces, mills, wears, stanks, stakes, and kiddles" of a date previous to "the reign of his grandfather, Edward I., by which the common passage de neefs et batelx en les grantz rivers d'Engleterre be oftentimes annoyed," and ordered the immediate pulling down of all such erections which were of a later date. From that time until the enactment of Henry VIII there were various laws passed, chiefly relating to the navigations and rights of mills, and occasionally to the preservation of fish.

It is acknowledged that the freer the admission of the tidal water the better adapted is the river for all purposes, whether of navigation, drainage, or fisheries. That its sectional area and inclination should be made to suit the required carrying power of the river throughout its entire length, both for the ordinary flow of the water and for floods. That the downward flow of the upland water should be equalised as much as possible throughout the entire year, and that all abnormal contaminations should be removed from the streams. A new department should, he thinks, be created, having entire charge of and control over all estuaries and navigable channels, both because these are used by foreign vessels, and, therefore, the responsibilities attaching to their preservation are international, and because they must be protected from hostile attacks, and on these accounts are essentially Imperial property.

For the same reason the cost of amending and maintaining them should be defrayed out of the Imperial exchequer. With regard to what is probably the most important point of all—the finding of the money necessary to carry out the recommendations—the committee advocate the introduction of a new principle of taxation, the soundness of which cannot be questioned. Instead of the principle first introduced by the statute of Henry VIII., and observed ever since, of levying taxes in proportion to the direct benefit conferred, the committee propose that the rates should be distributed over the whole area of a watershed, including not only the lands, but the towns and houses and all other property situate within that area, and he considers that in this case it is probable that the prevention of large present losses, and the advantages gained by an improved system, will give not only a fair but an ample return on the capital expended.

Meetings of Public Companies.

PESTARENA UNITED GOLD MINING COMPANY.

The ordinary general meeting of shareholders was held at the offices of the company, Queen-street-place, on Thursday,

Dr. F. F. QUIN in the chair.

Mr. W. H. ROWSE (the secretary) read the notice convening the meeting, and the report of the directors was taken as read.

The CHAIRMAN, in moving that the report now presented with the accounts and balance-sheet to Sept. 30, 1877, be received and adopted, congratulated the shareholders upon the improved position of the undertaking. On the occasion of the last meeting, when through ill-health his place in the chair was ably filled by Mr. Fisher, the financial position of the company was such as to cause the directors very serious anxiety, and it was only by large personal advances on their part that the company was kept in existence. Happily the efforts then made had been the means of saving a property as to the value of which all concerned in the management had expressed no uncertain sound. It would be in the recollection of the shareholders that the terms on which the Alessandria Bank agreed to extend to the company time to repay the loan of 400,000 lire were the payment of the whole debt in quarterly instalments extending over four years, and the raising by the shareholders of a further amount of working capital of at least 10,000*l.* on a second mortgage of the company's property, such amount to be applied in paying off the liabilities, and paying the first year's instalment to the bank. At the last meeting the directors by themselves and their friends had subscribed over 7000*l.*, but that sum had already been spent or been anticipated, so that it became necessary that a further sum should be provided. It was then that Mr. R. Taylor suggested that the shareholders should be personally canvassed for subscriptions to these bonds. That canvass was made by the directors, who were most heartily supported by the auditor, Mr. Swaffield, and by Col. Perceval; these gentlemen acting as a committee. The additional sum of 5000*l.* was thus obtained, making in all 12,000*l.* With these funds the directors were enabled to discharge the liabilities of the company beyond the debt due to the bank, and also to pay the first year's instalment in reduction of the principal, and furnish funds for the new works at Pestarena. The debt to the bank had now been reduced to 277,500 lire, or equal to about 10,000*l.* sterling. It would be apparent that by these payments the reduction in interest had been considerable, but the greatest satisfaction was that in proportion as the first mortgage was cleared off the security to the holders of the second mortgage bonds was increased. The mines and reduction works had very recently been inspected by Mr. Heneage Taylor, whose report would have been read with interest. He would leave details to the manager, and merely remark that by the completion of the new works at Peschiera they now had an establishment capable of treating a large quantity of ore, and they had also the satisfaction of knowing that the mines of the Pestarena group were yielding sufficient ore to keep the whole of the mills employed. The value of the reserves had been increased in the past year by 20,000*l.*, whilst the lode in the deepest part of the mine was a rich and profitable one. In the Val Toppa there was no important discovery, but now that the new wire-rope road was in full operation he believed they would be able to keep up profitable returns. He very much regretted the retirement from the board through ill-health of Mr. James Edmund Smith, a valuable colleague, who was ever ready to help the company with both his business knowledge and his purse. He was also sorry to say that Captain Roberts, the manager at the mines, was ill, but the latest accounts were more cheering.——Prof. SMITH seconded the motion.

Mr. HILL pointed out that the present accounts were nearly a year old. Could they not be brought up to a later date? With the exception of a paragraph on page 7 of the report the shareholders were in ignorance of what had been done in the interval, and particularly what was the state of the finances.

Mr. RICHARD TAYLOR said it would be a matter for consideration whether they should not hold the meeting at an earlier period, or else soon after the accounts were made. If that meeting had been held in the winter, the directors could not have presented so satisfactory a statement as they did to-day. The first page of the directors' report would show them how financial matters stood, and to that he referred the shareholders. He thought this winter it would be possible to make a change in the time of holding the meeting. As regards the mines, he did not know that it would be possible for him to say more than was contained in the excellent reports of Capt. Roberts, who, he was sorry to say, was now ill. The directors being anxious that the shareholders should have the latest information sent out his son—Mr. Heneage Taylor—to look thoroughly into them, and to discuss with Capt. Roberts all matters appertaining to them. The result of that visit was the report which all had doubtless read. There was nothing new at Val Toppa; the lodes did not produce high-class ore, but those they did produce were in abundance. In certain years valuable deposits of gold had been found in the side branches of very high produce, and from this source Val Toppa had been of much assistance to them. This year, however, they had only been working upon ordinary class ore, the operations being very much restricted hitherto by want of transport. This had of late been much improved, and had worked for six or seven months without much apparent sign of wear and tear. It was capable of conveying 30 tons of ore a-day in the usual working hours, and more if those hours were extended. The produce of these mines was of a higher grade than that of the St. John del Rey, but the latter mine treated larger quantities, though it did not by any means get out 32 per cent. of the gold, as was the case with the Pestarena Company. Their operation was, however, very slow, and they must get better means of reducing it by and-bye. Efforts were being made in this direction. Turning to Pestarena, shareholders would recollect that when his firm took the management they altered the internal arrangement of the mine, and made its means of producing ore more economical. They found it was worked in a very rude and barbarous way, and that the waste of labour was enormous. Mr. Harvey, in consultation with Capt. Roberts and ourselves, proposed that an inclined plane or shaft should be made to follow the direction of the great shoot of rich ore which at that time was presenting most promising indications in the very bottom of the mine. It was a great work, but nevertheless it was accomplished, so that now at a very little cost the ores were drawn up this plane to be reduced at the works erected at the mine. The reduction works are provided with ample power for the 20 mills already in operation, with spare power for seven or eight more. They had there ores which gave 1 oz. to 1 ton, in other words they actually extracted that. In the very bottom of the shaft they had a fine lode rich in gold, and the Chairman had truly said that of late the reserves in the mine had been increased in value by 20,000*l.* The inclined plane not only provided for the working of this mine, but also of Acquavite, with which it had now been connected. There was a mine on the opposite side of the river which was well spoken of, and they were now proceeding to unwater it. Certainly as regards the Pestarena Mine there was no disappointment whatever, but they must deepen it as quickly as possible so as to make large returns. If we do that, said Mr. Taylor in conclusion, I think that in the end you will receive a very handsome reward for the patience with which you have continued to be shareholders in the Pestarena.

A SHAREHOLDER: What is the depth now?——Mr. TAYLOR: 110 fms.

Mr. SWAFFIELD then stated the steps he had taken to get the additional funds, in conjunction with Col. Perceval, and congratulated the shareholders that the estimated profits for the last month were 800*l.*

Mr. TAYLOR read a statement showing how largely under his management the expenses had been reduced.

The report was then adopted, and the auditor re-elected.

A vote of thanks was passed to Mr. J. E. Smith for his past services, coupled with an expression of regret that ill health had forced him to retire from the board. A similar compliment was paid to the Chairman and directors, the committee, and Captain Roberts, the manager at the mine.

VAN RAILWAY COMPANY.

The half-yearly general meeting of shareholders was held, on Thursday, at the offices of the Van Mines, near Llanidloes, when the vice-Chairman, Mr. A. R. BOUGHTON KNIGHT, presided. There were also present—Mr. George Batters, Mr. Wm. Page, Mr. Allington, Mr. Evan Powell (Llanidloes), Mr. R. Gillart (Machynlleth), Mr. S. Breese (Garth), and Mr. W. J. Lavington (secretary).

Mr. EVAN POWELL proposed that 5 per cent. be paid instead of 4 per cent.——Mr. GILLART seconded the amendment.

Mr. ALLINGTON said the motion had been made in a hostile spirit.

Mr. POWELL denied that such was the case.——Mr. ALLINGTON said that legal advice had been taken by Mr. Powell, which showed that he was animated with a hostile spirit.——Mr. POWELL said he had merely used the advice that had been given to him, and although he quoted it he did not do it in a hostile spirit.——The amendment was then put, when four voted against it and two for it, Mr. Breese not having then arrived.

Mr. POWELL then said that he utterly denied the imputation cast upon him with reference to his being animated with a hostile spirit, but he thought it was now only right to inform the meeting that he intended to try the question legally.——Mr. PAGE said the directors could not have done more than they had done.——Mr. ALLINGTON was of opinion that it was hardly right to divide their profits right up to the hilt. The directors had divided 60*l.* above the profits of the half-year in the present dividend because they had had an extra expenditure. Their stock was now showing some signs of wear, and there would be a greater charge upon that than in the past. He, therefore, thought they ought to have a small balance to fall back upon in a trying hour. There had been five years of bad trade, which might continue, and then the Van would continue in its present state. They were not like a large trunk line, and must, therefore, be cautious.

Mr. POWELL said that whatever the earnings might be they should be divided, if even only 2 per cent. For many years there was no dividend paid at all. He should like to know whether the renewal fund account had been invested?——Mr. PAGE replied in the negative.——The SECRETARY said the general balance-sheet would show.——Mr. BATTERS said it really was as good as invested.——The CHAIRMAN, turning to Mr. Powell, said he could prevent the declaring any interest if he applied for a mandamus.——Mr. POWELL said: So far as he was advised by those who were better acquainted in railways than he was, it was always customary to divide more of the profits made than the Van Railway. He wished to know why they should want 1100*l.* in hand, besides that which came in every month in the shape of receipts. It really amounted to 1183*l.*——Mr. BATTERS said that Mr. Powell was really speaking against himself, as he was a very large shareholder—more than 1000*l.*——Mr. POWELL said he had as much the interest of the company at heart as anyone.——Mr. BATTERS said that under the circumstance it was for Mr. Powell to bow to the majority.——Mr. POWELL said he had been bound on many occasions to speak for the minority.——The CHAIRMAN said they would declare 4 per cent., and he might take what steps he liked afterwards.——Mr. BATTERS said that Mr. Powell would not go against the adoption of the report.

The CHAIRMAN then proposed, as from the chair, the adoption of the report, which was carried, Messrs. Evan Powell, R. Gillart, and Breese not voting.——Mr. BATTERS said it was unanimous.——Mr. GILLART said it could not be unanimous—it was really three against four; one majority.——Mr. PAGE: It is carried then?——Mr. GILLART: Oh yes; certainly.

The CHAIRMAN then proposed *pro formâ*—"That a dividend at the rate of 4 per cent. per annum be paid, free of income tax, and is hereby declared to be paid forthwith."——Mr. PAGE seconded the motion, which was carried by one vote—four against three.

Mr. BATTERS then proposed that Mr. Page be re-elected as one of the directors. He (Mr. Batters) should have liked to have continued a director, for he really projected the Van Railway, but as Mr. Page took great interest in the company he (Mr. Batters) was of opinion that Mr. Page should be re-elected.——The CHAIRMAN said they were very sorry to lose Mr. Batters, but it appeared a farce to have eight directors for so small a company.——Mr. BATTERS observed that he could say the directors never received any remuneration except their expenses.——Mr. ALLINGTON also spoke very highly of Mr. Page as a director, who took every possible pains for the benefit of the company, and he should, therefore, second the nomination—which was carried.——Mr. PAGE thanked the meeting for his re-election.——Mr. POWELL expressed great regret that Mr. Batters was retiring from the directorate. He also expressed an opinion that he should have liked to have seen another local director, as there was only one—Mr. David Davies.——Mr. GILLART endorsed Mr. Powell's remarks fully.

Mr. POWELL proposed, and Mr. GILLART seconded, the reappointment of Mr. Whaley as auditor, which was carried.

Mr. W. N. Swethenham (Newtown) was appointed engineer of the railway in place of Messrs. Powell and Swethenham, who have lately dissolved partnership.

The meeting was concluded after a vote of thanks to the Chairman.

THORPES GAWBER HALL COLLIERIES.—A meeting of shareholders was held at Barnsley on Tuesday, for the purpose of considering the report and transacting other business. Mr. C. J. Dibb presided, and there were only nine or ten shareholders present. The meeting, which was held with closed doors, was adjourned until next week.

ECONOMY IN MINING.—At North Levant Mine meeting, Dr. Quick said he thought that Levant should be one of the last mines in the parish to succumb, as they were raising a good quantity of mineral, and were little short of paying cost. They had made many improvements at Levant, and he hoped before long they would be able to show a better state of things. He was of opinion that a perfect reform was wanted in the conduct of their mines, and that there was plenty of laziness in the miners. He was in favour of the agents making a new rule for the miners, so that they should be able to make 20s. a week, instead of 12s. 6d. This would be better for the miners, and better for the mine: let the miners and agents pull better together, and let the miner get 4*l.* a month, but let him make a fair work for it. With tin at 35*l.* a ton, some mines were working at a loss, whilst they were doing just the same with tin at 60*l.* He believed that if the agents got men with a little more pluck and energy the mines would do much better. The men who went to Australia and abroad said they had to work twice as hard as at home. All they wanted was the chance to get 4*l.* per month, and they would soon do it. They said they had nothing to do with those who could not work, and did not see why they should bear the burden of such on their shoulders.

SANTA BARBARA (Gold).—The last advices from the mine, dated July 14, show a profit for June of 430*l.* 12s. 3d. The mine never looked better. The lode in the shaft is 7 ft. wide, with indications of improvement. In the stopes the lode is from 7 to 8 ft. wide, producing good quality of mineral, and showed an increase of 0·283 of an oitava in the yield of gold per ton, as compared with the previous month. The pumps will now be regularly at work, and the output will increase 200 tons per month, which will give larger returns and larger profits per month.

PANT-Y-MWYN LEAD MINE.—The directors' report and balance-sheet for the year ending June 30 has been issued. From its favourable character there is undoubtedly a brilliant future in store for this company. The ore sold realised 2115*l.*, independent of 95 tons on stock ready for sale, which has chiefly been obtained in driving the levels and sinking the shaft. The directors recommend the payment of a dividend of 2s. per share for the half-year, and carry a balance of 323*l.* 1s. 10d. to the credit of profit and loss account. Since the balance was made up a great deposit of ore has been intersected in the deepest level 6 ft. solid, and about 140 tons of rich ore have been extracted. Prof. Hessel pronounces it to be a very pure class of ore. It contains no silver, and after the lead has been eliminated from the galena it is very pliable and ductile, and, therefore, in great demand for the manufacture of leaden pipes and lead sheeting. The ore fetches 12*l.* per ton, and some 12,000 tons have already been discovered.

FOREIGN MINING AND METALLURGY.

In the Haute-Marne there have been few transactions, and considerable feebleness has characterised affairs. Coke-made iron contends with difficulty against the products of the Nord. In the Meurthe-et-Moselle group pig for refining has realised 2*l.* 8s. to 2*l.* 8s. 10d. per ton; pig for second fusion, 2*l.* 17s. 6d. to 2*l.* 18s. 4d. per ton; and first-class iron, 6*l.* 8s. to 6*l.* 12s. per ton. A fall which has occurred in the price of warrants has exerted a sensible influence on the pig-iron markets. The ironworks of the Nord are generally pretty well satisfied with the orders which they receive from the French provinces, and especially from the western towns of France, such as Nantes, Angers, and Brest. At Bordeaux a good demand has prevailed for sheets. It is affirmed that some important sales of products of the Nord have been effected at Agen, Toulouse, Marseilles, Vienna, &c.; these towns have hitherto only supplied their requirements in the matter of iron in the works of the Loire group. In the Loire-et-Rhône there has been a fairly satisfactory current of small transactions, but orders of importance have made default.

The deliveries of the last few days in the Belgian coal trade have reflected the improvement which is considered to have taken place in the Belgian iron trade. It would appear that consumers are taking precautions and are laying in supplies in anticipation of an eventual advance; the production of the Belgian collieries is, however, still "exaggerated," and prices remain, in consequence, very low. The Bruay (France) Mines Company commenced the payment, on Monday, of an interim dividend at the rate of 4*l.* 8s. per share. It appears that the production of coal effected by the Marcénelle and Couillet Company in the year ending March 31, 1878, amounted to 3,607,035 hectolitres. The blast-furnaces of the same company produced in the same period 23,631 tons of pig, while the rolling-mills made 15,536 tons of iron of various kinds. The consumption of minerals on the part of the company in 1877-8 was 397,232 hectolitres, of which 193,478 hectolitres came from the company's workings. The company's construction workshops turned out last year steam-engines, forges, &c., to the aggregate value of 93,028*l.*; the total turn over for the year was 330,135*l.* The results obtained by the company in 1877-8 were not very favourable; the industrial and commercial crisis not having terminated the company's collieries and workshops were carried on at a profit last year; on the other hand, the blast-furnaces and rolling-mills were worked at a loss. The final profit realised from working last year was 8014*l.*

The demand for coking coal has been somewhat weaker in Belgium, and stocks are increasing; companies accordingly find themselves under the necessity of reducing the extraction of this quality of coal. Coke is also in less demand in Germany, although the price has declined, and a further fall is anticipated. Many companies in the Dortmund district find it extremely difficult to compete with other concerns in the Gelsenkirchen group, in consequence of the high rates of transport charged to Holland. The German iron trade has not revived from the torpor to which it has long been reduced. Notwithstanding the peace of Berlin the manufactories producing arms are still well employed. The great establishment of Herr Krupp, at Essen, has also plenty of work. A good demand prevails in Germany for railway *materiel*, and especially for Bessemer steel rails, wheels, axles, &c. The German boiler works are further better employed than they were some time since. At the same time the price of iron remains very low.

Contracts for 50 10-ton trucks for the Belgian State Railways have just been let at 87*l.* per truck, to MM. Delforge and Co., of Seneffe. The Baume Ironworks and Foundries Company secured a similar contract at 87*l.* 5s. per truck. Contracts were also let for four lots of closed 10-ton trucks, each lot comprising 45 trucks. The contract prices ranged between 150*l.* 15s. and 151*l.* 4s. per truck. The aggregate amount of the orders given out amounted to about 40,000*l.*; the price at which the contracts were let were, upon the whole, about the same as those which prevailed at the last adjudication. The Belgian iron trade is considered to have improved, and if this is really the case some improvement in prices may be anticipated. M. Vigueron has assumed the management of the works of MM. Duhamel and Co.; this firm owns works at Coullet, Levallois near Paris, and Brussels.

MANUFACTURE OF NITRO-GLYCERINE.

It is well known that nitro-glycerine is manufactured by the admixture of glycerine with nitric and sulphuric acids, and the subsequent washing away of the waste acids in very cold water. This water is made very cold because of the strong tendency of the nitro-glycerine to decompose except when kept at a very low temperature. Notwithstanding the coldness of the water, however, there is a considerable heat engendered immediately the acids mix with the water. This heat injuriously affects the nitro-glycerine which accompanies the acids, causing its partial decomposition and lowering its quality. The invention of Mr. FREDERICK MANN, of Koroit Creek, Victoria, has been designed for the express purposes of preventing this decomposition and lowering of the quality of the nitro-glycerine, and of recovering the waste acids, which by the processes at present in use are irrecoverably lost. It consists in first crystallising the nitro-glycerine by freezing before attempting to separate it from the acids, and then separating such crystals from such acids by a centrifugal washer, such as is used for the separation of sugar crystals from molasses, or by any other of the machines now in use for separating a crystal from a liquid. A subsidiary portion of the invention consists in the subsequent treatment of such waste acids when recovered, so as to bring them into a marketable form.

In making nitro-glycerine, according to Mr. Mann's invention, the acids and glycerine may be mixed in any of the methods commonly employed. When this has been done his invention comes into play, for instead of conducting such mixture into a large quantity of very cold water he subjects it at once to a sufficiently low temperature to freeze or crystallise the nitro-glycerine contained therein. This is not readily accomplished, but it is very greatly assisted if a very small portion, say a tea-spoonful, of previously frozen nitro-glycerine be thrown into the vessel containing the mixture. This addition of frozen nitro-glycerine is not necessary except when making the first charge, inasmuch as sufficient frozen material clings to and remains on the sides of the vessel after the first charge. The fact of its having frozen is known by a very sudden rise in the temperature of the mixture, which rise is indicated on a thermometer attached thereto; this rise will amount to several degrees, say from 15° to 25°, and is seen at a glance. When this has been accomplished he separates the crystallised nitro-glycerine from the waste acids by placing the whole in a centrifugal machine, such as is commonly used for separating crystallised sugar from molasses. The crystallised nitro-glycerine thus obtained he then places in cold water, when it liquifies and sinks to the bottom, from whence it can be drawn and used for any purpose.

The waste acids removed by the centrifugal separation contain certain organic compounds, which it is desirable, if not necessary, to remove before using for any other purpose except the reproduction of sulphuric acid. To this end he conducts such acids into a suitable still, such as is well known to manufacturing chemists, and there subjects them to the action of superheated steam until the organic compounds therein begin to decompose, which is known by the presence of red fumes arising. As soon as these appear he substitutes heated air for the steam, so as to complete such decomposition without further reducing the specific gravity of the acids. This he continues until the red fumes cease. He then cuts off the supply of heated air and allows the mixture to cool, when it can be used for most of the purposes to which common sulphuric acid is applied. Instead of subjecting such waste acids to this purifying process they may be used directly in the further manufacture of sulphuric acid when the organic nitro compounds therein would be utilised.

WATSON BROTHERS' MINING CIRCULAR.

Ten years ago the weekly information which had previously been published for a great number of years in WATSON BROTHERS' Mining Circular was transferred to the columns of the *Mining Journal*, with the following announcement; which is now reproduced in consequence of the numerous letters and enquiries handed to them of late in reply to one which appeared in the Journal on the Clementina Mine.

In the year 1843, when mining was almost unknown to the general public attention was first called to its advantages, when properly conducted, in the "Compendium of British Mining," commenced in 1837, and published in 1843, by Mr. WATSON, F.G.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," "Cornish Notes" (first series, 1862), "Cornish Notes" (second series, 1863), "The Progress of Mining," with Statistics of the Mining Interest, annually for 21 years, &c., &c. In the Compendium, published in 1843, Mr. WATSON was the first to recommend the system of a "division of small risks in several mines, ensuring the success in the aggregate," and Messrs. WATSON BROTHERS have always a selected list on hand. Perhaps at no former period in the annals of mining has there been more peculiar need of honest and experienced advice in regard to mines and sharedealing than there is at present; and from the lengthened experience of Messrs. WATSON BROTHERS they are emboldened to offer, thus publicly, their best services and advice to all connected with mines and mining.

Messrs. WATSON BROTHERS are daily asked their opinion of particular mines, as well as to *recommend* mines to invest or speculate in, and they give their advice and recommend mines to the best of their judgment and ability, founded on the best practical advice they can obtain from the mining districts, but they will not be held responsible, nor subject to blame, if results do not always equal the expectations they may have held out in a property so fluctuating as mining.

WATSON BROTHERS,

MINEOWNERS, STOCK AND SHARE DEALERS, &c.

1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

The great extension of mining business, the difficulty so often complained of by country shareholders in getting accurate and disinterested information as to the state of Cornish and Foreign Mines, and of the financial and real position of mining companies generally, have induced Messrs. WATSON BROTHERS to make their Circular now published in the *Mining Journal* more extensively known, and to state—

That they issue daily to clients and others who apply for it a Price List (as supplied to most of the London and country papers), giving the closing prices of Mining Shares up to Four o'clock.

They also buy and sell shares for immediate cash or for the usual fornightly settlement in all Mines dealt in on the Mining and Stock Exchanges, at the close market prices of the day, free of all charges for commission. They deal also, on the same terms, in the Public Funds, Railways, Telegraphs, and all other Securities dealt in upon the Stock Exchange.

Having agents in all the mining districts, they are constantly getting mines inspected for their own guidance, and will also obtain special reports of any particular mine for their clients, for the inspecting agent's fee of £2 2s.

A SMALL SPECULATOR.—We never recommend time bargains in mining shares, nor speculating with money that one cannot afford to risk. We always advise a division of risks—that is, a selection of half-a-dozen mines, so as to ensure success in the aggregate. That we generally recommend mines that we are interested in is only natural. They are, in a measure, under our own supervision; we know all changes that take place, and take care that our friends shall also know them as soon as possible, privately as well as through this medium. The great rise in D'Eresby Mountain has not been of any great pecuniary value to us so far, as we hold all our original shares intact, and have bought more at the highest prices yet quoted.

Some thirty years ago we formed a company to work South Tamar Mine in 9000 shares of 12s. 6d. each. Many of our friends took 1000 shares each, and we kept 1000 ourselves. Before they had cost 1*l*. each they rose to 9*l*. per share, and the mine after a time paid 9000*l*. a year in dividends, until a serious accident happened through the flooding of the River Tamar. Now (and this is why we refer to the mine), Capt. Bennett was ore dresser at South Tamar, and after he found D'Eresby Gorse lode, and when he said with machinery he could make regular monthly returns, he wrote us—"South Tamar work was not richer for lead than D'Eresby, and we made as much as 18,000*l*. profit in one year. Of course I need not bring this before your notice, for you know what South Tamar did as well as myself, and I had the management of all the dressing department in its best days." This was one of the reasons we never sold a share; and have so strongly recommended the mine; and when Mr. Jehu Hitchins and others reported that there was any quantity of stuff to be had we determined to see the result of the machinery upon it. This will be known in about a month, and if it equals expectation, and the No. 5 level comes in good, the shares are not at one-third their value. A good selection, therefore, would be—1 share in D'Eresby Mountain, 5 Aberllyn, 5 D'Eresby Consols, 5 Clementina, 5 Patelev Bridge, 5 South Frances, 10 Morfa du, and then wait patiently a few months.

HULTAFALL.—We hope to give the required particulars, from a gentleman who has just visited the mine, next week.

PANY-Y-MWYN.—We have applied for the particulars required. We should imagine that the "capital" of the company consists in the unissued shares.

J. C. (Liverpool).—The Mineral Corporation of Great Britain is a French company registered under this title, capital 80,000*l*., in 8000 shares of 10*l*. each. The statutory meeting was held on June 16, and the return according to the Act shows that up to July 30, 807 shares had been taken. This number includes 274 shares signed for in the Articles of Association by a gentleman who, with his nominees, is to be paid 5000*l*.—in 500 fully paid-up shares of 10*l*. each—for his services in carrying out the objects of the company. Share warrants for 500 shares of 10*l*. each have been issued, and are included in the 807 shares referred to. The company have purchased the Hafna Mine, near D'Eresby Mountain Mine, and we wish them, we can assure you, every success; there is plenty of room for us all in the district, which will become an important one before long. At the statutory meeting of the company some remarks were made by the chairman reflecting, as we and others thought, on one of our mines, and in contradicting these the controversy referred to has arisen. We have no feeling against the Hafna Mine; on the contrary, we believe it to be an excellent speculation for an east and west lode, and with capital to develope it.

The number of letters we get every week asking us to give an opinion in this column upon different mines and things connected with them show with what interest it is read throughout the country, and we are, as we have stated before, anxious to be as correct as possible in all we assert. The "note" we added to our remarks last week was a sufficient reply to that of Capt Bennett in his forgetfulness when he said that "before Messrs. Watson and Lamb visited the D'Eresby Mountain Mine he had men working on the Hafna lode in No. 4 adit." We stated, as we maintain, that up to our visit in June, 1877, nothing had been done there for the company, and in proof of it we have now requested the secretary to examine all the cost-sheets prior to that date, and he informs us the No. 4 is never once mentioned till July, 1877, just after, in fact, we had ordered the work to be done. The following is the entry of Bennett, and the very part that occurs in relation to that level:—"Three men clearing out No. 4 adit level, 12 stems, at 3s. 8d., 2*l*. 4s." This was to July 8, 1877, and the work of 12 days would, therefore, have been commenced the latter part of June.

A PARISIAN.—Under the English Limited Liability Act (25 and 26 Victoria, cap. 89, sec. 28) every company having a capital divided into shares must within 21 days of the first general meeting forward to the Registrar of Joint Stock Companies a list of the members of the company, with the names, addresses, and occupations, and the number of shares taken by each. Also in a tabulated form the amount of capital for the company subscribed up to date, amount of money received, and amounts still due, &c. The penalty for not sending in this list within 21 days is 5*l*. per day.

Under the Act of 1862 (30 and 31 Victoria, cap. 131) it is enacted that "every company formed under the principal Act (referred to above) shall hold a general meeting within three months after its Memorandum of Association is registered." This is called the statutory meeting, and within 14 days the lists before referred to have to be made up, and within 21 days registered as aforesaid.

Under this Act a company authorised so to do by its registrations as originally framed or altered by special resolutions, may issue warrants to bearer, &c., under certain restrictions. On the issue of a warrant in respect of any share or stock, the company shall strike out of its register the name of the member taking it, and enter—

1.—The fact of the issue of the warrant.

2.—A statement of the shares or stock included in the warrant, distinguishing each name by its number.

3.—The date of the issue of the warrant.

And until the warrant is surrendered up, the above particulars shall be deemed to be the particulars required by the 25th section of the old Act referred to.

After the issue of a share warrant the summary required by the 26th section of this Act shall contain the total amount of shares for which warrants have been issued, &c., so as to show to all enquirers the position and standing of the company.

SATURDAY, AUG. 17.—Market inactive, and prices nominal. Van, 18⅛ to 19⅛ Great Laxey, 18⅛ to 19⅛; Aberllyn, 10 to 12; D'Eresby Mountain, 80 to 90; East Van, 5¼ to 5¾; Roman Gravels, 7⅛ to 8; Rookhope, ⅝ to ⅞; Carn Brea, 32½ to 35; South Condurrow, 11 to 11¼; South Frances, 4 to 4¼.

MONDAY, AUG. 19.—There is very little doing, and the following quotations are again merely nominal. Aberllyn, 10 to 11; Clementina, 1¼ to 1⅛; Carn Brea, 32½ to 35; Dolcoath, 25 to 27½; D'Eresby Mountain, 80 to 90; D'Eresby Consols, 10 to 11; East Van, 5¼ to 5¾; Grogwinion, 2¼ to 2¾; Great Laxey, 18⅛ to 19⅛; Leadhills, 2½ to 3; Parys Mountain, 7s. to 9s.; Pateley Bridge, 4½ to 5½; Penstruthal, 3s. to 5s.; Roman Gravels, 7⅛ to 8; Rookhope, ¾ to ⅞; South Condurrow, 11 to 11¼; South Frances, 4 to 4¼; Tankerville, 3½ to 4; Tincroft, 7 to 8; Van, 18⅛ to 19⅛; West Chiverton, 6½ to 7⅛; West Tolgus, 52 to 54; Agar, 4 to 4¼; Grenville, 2½ to 3; Peevor, 6 to 6½; West Wye Valley, 2½ to 3; Wye Valley, 1½ to 2; Eberhardt, 4 to 4¼; Richmond, 8 to 8⅛; Frontino, 1¾ to 2.

TUESDAY, AUG. 20.—Market very quiet, and prices generally about the same as yesterday. Frontino firm at 2¼ to 2¾. Richmond, 8⅝ to 8⅞.

WEDNESDAY, AUG. 21.—Market continues inactive. Great Laxey and Vans firm at quotations. East Vans weaker. Great Laxey, 18⅛ to 19⅛; Van, 18⅛ to 19⅛; Roman Gravels, 7⅛ to 7¾; East Van, 4½ to 5; South Frances, 3¾ to 4; Rookhope ¾ to ⅞; Parys Mountain, 7s. to 9s.; Tankerville, 3½ to 4; Aberllyn, 10 to 12; D'Eresby Mountain, 80 to 90; Tincroft, 7 to 8; West Tolgus, 52 to 54; Peevor, 6 to 6½.

THURSDAY, AUG. 22.—Market quiet, and tin shares weaker. Carn Brea, 31 to 33; Dolcoath, 24 to 26; South Condurrow, 10¾ to 11¼; Agar, 3¾ to 4; South Frances, 3¾ to 4; Grenville, 2½ to 3; D'Eresby Mountain, 80 to 90; Aberllyn, 10 to 12; Van, 18⅛ to 19⅛; Great Laxey, 18⅛ to 19⅛; East Van, 4½ to 5; Richmond, 8½ to 8¾.

FRIDAY, AUG. 23.—Market quiet. Frontino advanced to 3*l*. buyers; Pateley Bridge and Richmond weaker. Frontino, 3 to 3½; Great Laxey, 18⅛ to 19⅛; Van, 18⅛ to 19⅛; Pateley Bridge, 4 to 4½; D'Eresby Mountain, 80 to 90; D'Eresby Consols, 10 to 11; West Tolgus, 51 to 53; Tincroft, 7 to 8; Carn Brea, 31 to 33; South Condurrow, 10¾ to 11¼; West Chiverton, 6 to 7; Richmond, 8 to 8⅛.

Mining Correspondence.

BRITISH MINES.

ABERDAUNANT.—S. Toy, Aug. 21: During the past week we have driven the deep adit cross cut north 8 ft. The ground has changed for the better. We have some nice soft floors containing sulphur and carbonate of lime. If the ground continues as it is now we shall drive a greater distance next week.

ABERLLYN.—John Roberts, Aug. 21: We have laid 40 fms. of rails, and by next week I hope that we shall have laid them up to the point we have cleared and secured. The great blende lode is much the same as last week. When having driven a sufficient distance to make room, we shall sink a winze to the deep level, and also a winze from the shallow level down to the same point. This will open a range of stopes for 30 fms. in height.

BEDFORD UNITED.—R. Goldsworthy, Aug. 19: We commenced to take down the lode in the 138 this morning, and, so far as seen, it still maintains its former size and value—viz., 2 ft. wide, and worth 9*l*. per fathom. The lode in the engine-shaft continues much the same as when last reported on.

BEITWS-Y COED.—H. T. Haley, Aug. 19: Setting Report: The lode in the shallow adit, west of air-shaft, continues to open out in the most satisfactory manner; worth 2 tons of lead per fathom, and set to four men stent the month at 4*l*. 15s. per fathom. The lode in the shallow adit east is squeezed up a little, but is worth about 10 cwts. of lead at present, and I think will soon improve again, and set to two men stent the month at 52s. 6d. per fathom. In the winze in the bottom of the adit the lode is looking very promising, and opening out good ground for stoping; yielding at present 18 cwts. of lead per fathom, and set to two men at 4*l*. 10s. per fathom. The deep adit to drive east, by two men, stent the month and tram the stuff to plat, at 50s. per fathom; for the last 2 or 3 fms. this end has greatly improved, and from its appearance I think will quickly have ore to value. We are pushing on the surface work with all possible dispatch, and the masons are making good progress in building.

BLAEN-CAELAN UNITED.—Jonathon Pell, Aug. 20: The engine-shaft is sunk 11 fms. 1 ft. 6 in., and the ground is hard for sinking. The 30, west of winze, has been driven 5 fms. 5 ft., and is improving for lead; worth 25*l*. per fathom. The 30 east is temporarily suspended; it is better to keep the six men driving west to accelerate a junction from the 35, which we shall shortly be in a position to commence from the engine-shaft; the present value of the 30 east is 20*l*. per fm. The full value of the lode in both these levels can only be ascertained when stoping has commenced, as very narrow levels only are driven on the south side of the lode. The new arrangement of the slime-floors works well, and everything has now been done to meet the requirements of the River Pollution authorities. The only drawback to our resumption of dressing operations is the continued low price of lead.

BLUE HILLS.—S. Bennetts, P. Bennetts, August 17: The top lode in the 80 ends, both east and west of the engine-shaft, is at present small, although rich tinstuff, and worth 4*l*. to 5*l*. per fathom. The Pink lode at the same level in the east end is 4 ft. wide, and appears to be improving in quality, and containing some good tinstuff. The north lode in the 30 east end is also improved, and worth 8*l*. per fathom.

BODIDRIS.—H. Hotchkiss, August 21: All points of operation at this mine have been steadily progressing during the week, and fair progress has been made. There is no further improvement in the 60 in winze in bottom of level on Maes-y-pwll lode; the lode is of fair average width, with a very good underlie north, and contains spar, blende, and a little lead ore—we are down here 16 ft. In the end driving east the ground is becoming stronger, and of favourable appearance for producing lead ore, and I am daily expecting to cut a good run here. There is no change in the 45 east on middle lode. The stope in bottom of the 30 is without change; have had a good pile of ore drawn to surface from here this week. —The Easternmost Shaft: I intended to have cleared out this winze which is in bottom of this shaft this week, but the men have been busy squaring down the shaft. I ordered the men to commence on it on Monday, and if possible will clear it out to bottom, after which we can bring down the shaft to its proper size. I had a hole blasted in the heading side of the shaft, which broke some nice lumps of lead ore and blende, and I am lead to believe that the bearing part of the lode is still standing in this side, the former workers having sunk in the hanging side; however, I shall give this my attention by trying it occasionally as going down.

COMBMARTIN.—J. Harris, J. Comer, Aug. 22: We have very little change to report in our underground operations. The lode in the 15 east continues large, and carrying a little lead and blende with mundic; but we have to-day put the men to cross cut south for a south lode, which we think can be reached in about 3 fms. driving. This lode has not been touched for the past 36 fms., and we think it should be seen, as at a few fathoms to the west of that point the former workers extracted large quantities of good silver lead ore from above and below this level, and it can be explored at little expense, and be reached this month. The men in the adit cross-cut are making fair progress with their drivage, the killas being highly mineralised with mundic and faces of lead.

COURT GRANGE.—J. G. Green, Aug. 22: All the machinery is now at full work, and I hope soon to have a parcel of ore ready for market. I find the stone-breaker takes a considerable amount of power, thus checking the motion of the water-wheel; a remedy for this be a good supply of water. The mine is clear of water to the 65 fm. level roof, and in another week I expect to have the shaft clear of water. The 45 east is producing saving work for the floors. The 30 east is worth 20 cwts. per fathom. The 14 east is worth 25 cwts. per fathom. The winze sinking below the 14 is worth 18 cwts. per fathom. The 14 west is worth 20 cwts. per fathom. All the stones are turning out good stuff.

CWM DWYFOR (Pensarn Mine).—J. Ridge, Aug. 22: The lode in Morgan's shaft continues 4 ft. wide, composed of slate, spar, carbonate of lime, and a strong mixture of lead ore, 6 in. wide, in the west end of the shaft, which looks promising for improvement. The men are making good progress in sinking. I have let the sinking of the shaft for 6 fms. more at the same price (10*l*. per fathom), the takers to pay all cost of drawing stuff and water.

D'ERESBY CONSOLS.—J. Roberts, W. Sandie, Aug. 21: The lode in the end in the Gors heading is still pinched rather small. The end in Owen's lode is looking better; the leader of blende is larger, and the lode throughout is looking more kindly for lead. We have commenced driving in the east and west lode towards Cobbler's lode. The lode is 12 in. wide and well defined, having a matrix of carbonate of lime and quartz, which is mixed with sulphur and blende, very vughy and letting out a stream of water, which we regard as a good indication not only of lead in the lode, but also the Cobblers' lode, when we reach it.

D'ERESBY MOUNTAIN.—J Roberts, W. Sandoe, Aug. 21: The lode in No. 1 is still looking very well, is 18 in. wide, producing beautiful lumps of solid lead and a good mixture of blende. The lode in No. 3 is rather smaller; you are aware that this lode does sometimes pinch up small, and then suddenly opens out again, so this pinch we regard as only temporary. The stope in No. 4 is similar to what it was last week; the lead seems to be concentrating itself into veins and ribs. At No. 5 we are opening for a lodge at No. 3 shaft, so as to hold stuff sufficient for a day's hauling for a horse; we do not anticipate that this will take us more than three days. By taking this course we shall cheapen as well as hasten on the work of clearing. You are aware that an east and wast lode crosses the shaft here, which has been wrought on by former workers rather extensively to that depth, and in a small arch of ground left by them to support the sides we took out some good stones of lead ore, and we fully believe that this will make an important point when we open this part of the mine deeper.—Surface: We are pushing on every portion of the work as fast as possible. The large water-wheel will be finished this week. The small wheel which we have made on the mine is now erected and complete. The carpenters are busy making launders, buddles, &c. The stone breaker we shall start about when the foundry people clear out of our way. The reservoir is progressing very well, and will be ready by the time that other things are ready for it.

DENBIGHSHIRE CONSOLIDATED.—A. Francis, R. Prince, Aug. 22: The change in the 112 east is steady and favourable; there is a rib of spar on the heading side of the lode 6 in. wide, and we believe we are close upon a very important discovery. Some great change is about taking place in 112 west; the lode is gradually opening out, and we are expecting to meet an important run of ore. The lode in the driving east from the bottom of the sump in the 56 is still of great width; indeed, we have not yet seen either wall. We have been raising therefrom splendid rocks of lead, and we believe believe that when the ground is more settled we shall have a fine course of ore. The tributers are doing fairly well, and we shall send off on Saturday a further parcel of 7 tons of lead, which has realised 10*l*., 7s. 6d. per ton.

DUBBY SYKE.—Wm. Tallentire, Aug. 16: The four men are set to lay open the vein east, so that hands can be kept regularly employed taking down the vein behind them. The other two men will be set to the stope on Monday first; there is nice ore standing where they will commence to stope. We have driven the west drift a few feet this week; I do not think it will produce anything like payable ore, and not much probability of an improvement, as close before us is a strong north and south vein, which causes a lot of confusion; the men from this end are set to stope as named above. Dressing is going on, and we have plenty of water now.

EAST VAN.—W. Williams, Aug. 22: The 70 fm. level cross-cut north has been driven 25 ft., and has now reached the hard part of the lode, which is intermixed throughout with spots of lead. We have now reached the point at which we hope to find the lode productive.

EAST WHEAL LOVELL.—R. Quentrall, Aug. 21: The 80 cross-cut north at Fatwork is letting out much more water than usual. The only alteration in the additional limits is in the north shaft, where the lode is producing more tin than it has been, and is looking very promising.

GAWTON COPPER.—G. Rowe, G. Rowe, jun., Aug. 17: The ground in the 117, east of engine-shaft, is improving, and our progress in driving very satisfactory. The lode in the winze and stope going down below the 105 is worth 25*l*. per fathom. The lode in the rise and stope going up in the back of the 105 is worth 12*l*. per fathom. The part of the lode carried in the winze sinking below the 95 east is worth 10*l*. per fathom. All other points of operation are without change.

GLASGOW CARADON CONSOLS.—William Taylor, W. J. Taylor, Aug. 19: The sinking of Elliott's shaft below the 90 is progressing favourably; ground, on the whole, a little easier. In the 90 east the lode is still disordered and not of much value, but there are indications of easier ground and better lode, which we expect as we get further advanced under the ore ground in the 78. In the 90 west we are still cross-cutting north; we have just passed a small branch, but no doubt the main lode is still further north. We are putting up a rise in the back of this level to hole to the 78 for ventilation; lode worth 12*l*. per fathom. The north branch is worth 10*l*. per fathom. In the 78 east we are still cutting south through the lode; so far producing stones of ore, but not of much value. West at this level we are sinking a winze down 3 to 4 fathoms; lode worth from 8*l*. to 10*l*. per fm. No other change in the levels. The stopes and pitches, on the whole, are looking very well, and varying in value from 12*l*. to 35*l*. per fathom. Everything is being pushed on as fast as possible, and all the machinery and pitwork in good working order.

GLENROY.—R. Rowe, August 21: We have forked the water to the 80, and if all goes well the men will be regularly under way sinking the shaft on Monday morning.

GORSEDD AND MERLLYN CONSOLS.—W. Edwards, August 22: The shaft is down 23½ yards; this gives us plenty of room for the surface water to accumulate in the bottom. The men are now cross-cutting both north and south to prove the two lodes. In the driving west at the 70 we are in a fine course of ore, and in the other end east, on the new lode, the same remark will apply. The tributers have done well this last month.

GREAT HOLWAY.—Aug. 22: Since the directors were here, and decided upon the course to be adopted with reference to the erection of suitable pumping power, we have succeeded in putting in the dam at the 80, and shall lose no time in carrying out your instructions for the development of our great discovery in the eastern portion of the mine. We have two men at a tribute pitch at Office shaft, and the tributers at Partridge shaft are getting some good lead and blende.

GREAT LAXEY.—F. Reddicliffe, August 21: Deep Mine: The casing has been put in the Welsh shaft to the 247, and drawing by machine from that level commenced to-day. We consider the 235 end north to be fairly through and clear of the slide, but still it has not tapped the water and drained the ground as yet in the way the upper levels have each previously done as soon as the slide has been fairly penetrated. The ground in the end, however, is rather close at present to let much water through, and it will be only to reach a more open character of lode, and the water will no doubt quickly be drained, which we hope may be in a very few days. In the meantime, the sinking of Dumbell's shaft will be suspended, for it has reached the water-line, and it will be best to delay the sinking until the water is drained down, as that will probably be but a few days. The lode in the 220 end north is thrown to the east by a cross-joint, and the value is temporarily interfered with and uncertain. The stopes in this part of the mine require no remark.—Dumbell's: The 215 end north is worth 25*l*. per fathom. The 200 north is very much improved in character, and also begins to be productive, the value being at present worth 10*l*. per fathom. The lode in the 185 end north is smaller at present than for some time past, now worth 20*l*. per fathom. In the 170 end the lode is large, and worth 25*l*. per fathom. There is no change in any of the ends above this, and the stopes in this part of the mine are also of about the same value as last reported. In the south ground, No. 2 rise in the 165 is holed to the winze recently sunk from the 145, so this ore ground can now be stoped to better advantage. The shaft from surface at Dumbell's is holed to the rise, and the machine will be squared for drawing by this direct way as soon as rain comes to enable us to throw the steam-engine off.

GREAT RETALLACK.—T. Harris, Aug. 17: We have not yet reached the lode by the cross cut from boundary shaft as I anticipated, the ground having become stiffer for driving since last reported, but we are hoping a change for the better will be soon met with. I calculate we have about 3 or 4 fathoms further to drive to reach the lode. The men's contract not being cut there was no survey with them, and the price for driving is 20s. per fathom.

GREEN HURTH.—W. Vipond, August 16: We have just finished with the stope on the third branch, west of No. 1 cross-vein; I have no place where I can put these two men to ore, and I think they should either go to the open-cut or the sinking. The stope on the east and west vein is yielding about 6 cwts. of ore per fathom. The new working below the adit level sole is yielding 1 ton of ore per fathom in the grey beds. We are still getting a little ore with two men near Fire Away cross-cut. We are just about finishing cutting out the sump top to-day, and shall get a start with the sinking next week. We are getting a little ore from the end of No. 3 cross-vein at present; very nice samples, but not enough to value. There seems to be some unusual confusion in this end just now, but from what cause I cannot say. The open-cut is progressing; I think we shall reach the vein or branch next week.

HARWOOD.—W. Tallentire, Aug. 16: Herdship Level: The south end working has been rather poorer. We have intersected an east and west string, with about 10 in. throw. Since we cut through this string the vein is producing 16 cwts. of lead ore per fathom, and is looking exceedingly well. Some fathoms that have been lately cut have produced 1 ton of lead ore, but, taking the average production of the last 12 fathoms, it has produced rather over 16 cwts. of ore per fathom. We have 16 bings of lead ore ready.

HINGSTON DOWN CONSOLS.—Thomas Richards, Aug. 22: Bailey's Shaft: In the 172 east we have commenced sinking and stoping in the bottom of the level in the ore ground, where the lode is of large size, containing capel, quartz, mundic, and copper ore, to the value of 15*l*. per fathom. In the stope in back of the 172 east the lode is worth 20*l*. per fathom. In the 160 west the lode is still in a disordered state by the influence of the cross-course. In the tributers' sink, in the bottom of the 160, the lode is worth 10*l*. per fathom, and showing signs of improvement. In the tributers' stope and pitch in back of the 110 the lode has a very good appearance, and is exceedingly promising. In the deep adit the ground is of much the same character, being granite of a favourable description, and fair progress is being made.

LADYWELL.—A. Waters, Aug. 22: No material change here since my report of last week. We have to-day sold 25 tons of lead ore for 228*l*. 10s.

LIVINGSTONE CONSOLS.—Wm. Vivian, August 22: There is no particular change to notice in any of our underground operations since last week.

MELLANEAR.—John Gilbert, Aug. 21: The 40, west of No. 2 rise, west of Gundry's shaft, has been driven during the past month 5 fms. 0 ft. 6 in.; the lode is 4½ ft. wide, worth 4 tons of ore per fathom. The 90, west of Gundry's shaft, has been driven 4 fms. 2 ft. 6 in.; the lode is 6 ft. wide, and producing good stones of copper and lead ores, but not sufficient to value. The winze in the bottom of the 60, west of Gundry's, has been sunk 2 fms. 1 ft., and is now communicated to the 70 fm. level. The 50, east of Gundry's, has been driven 3 ft.; the lode is 2 ft. wide, and worth ½ ton of ore per fathom. We expect to communicate this end with the 40, west of the skip-shaft, some time this week. The 80, west of Gundry's shaft, has been driven 3 fms. 1 ft. 6 in.; the lode is 5 ft. wide, worth 2 tons of ore per fathom. The ground has improved for driving, and the lode is letting out an increased quantity of water. The rise in back of the 40, west of No. 1 rise, has been put up 5 fms. 4 ft.; the lode is 4 ft. wide, worth 3 tons of ore per fm. The lode at present is disordered by a horse of killas, but we expect the two parts will unite again very soon. The 70 fathom level, west of Gundry's, has been driven 4 fms. 3 ft. 9 in.; the lode 6 ft. in width, and is worth 2 tons of ore to the fathom, and looking very promising for an improvement to take place. The 60, west of Gundry's shaft, has been driven 4 fms. 0 ft. 6 in.; the lode is 5 ft. wide, and improved to 4 tons of ore per fathom. The 40, west of the skip-shaft, has been driven 3 fms.; the lode is 2½ ft. wide, and worth ½ ton of ore per fm. The 50, west of Gundry's shaft, has been driven 3 fms. 4 ft. 9 in.; the lode is 3 ft. wide, and worth 1 ton of ore per fathom. We expect this level will improve, as we shall ae soon driving over some good ore ground that we had in the level below. The rise in the back of the 60, west of Gundry's shaft, has been put up 2 fms. 2 ft.; the lode is 3 ft. wide, and worth 2½ tons of ore per fm. The 100, east of Gundry's shaft, has been driven 3 fms. 1 ft. 6 in.; the lode is 4 ft. wide, and worth 1 ton of ore per fathom. We expect this level will soon improve, as we passed over a good lode in the bottom of the 90, about 5 fms. east of this end. These men are also engaged in cutting a plat at the 100. The 30 cross cut, south of Gundry's shaft, has been driven 10 fms. 1 ft.; this cross-cut is now 35 fms. south of the shaft; the end is again quite clear of the elvan course, and the ground is favourable for driving. The 100, west of the skip shaft, has been driven 5 fms. 5 ft. 6 in.; the lode is 18 in. wide, producing some very good stones of copper ore. We sampled yesterday (computed) 560 tons of copper ore.

MINERAL CORPORATION OF GREAT BRITAIN (HAFNA MINE).—W. Bennetts, Aug. 21: We are getting on well with the drawing out of the water from the shaft sunk in the bottom of No. 1 adit level, and if all goes on as at present in a day or so I hope to have the water in fork to the bottom of the shaft. The stope in the back of No. 1 adit is still producing good steel ore. The lode in the rise in the back of No. 3 adit level is still looking well, worth 1 ton of lead ore to the fathom.—Deep Adit: The men are making fair progress in driving the cross cut. I calculate that we have about 4 fms. more to drive to intersect the lode.

MONYDD GORDDU.—James G. Green, Aug. 21: I am glad to be able to report that the mine is now clear of water, and the various bargains resumed. The 34 cross-cut is in 3 fms. from the shaft, and there is no appearance as yet of the hard part of the lode. The 24, to drive west obliquely through the lode, by four men; the end is without mineral to value. To drive intermediate level east from the winze over the cavity; the lode is worth 15 cwts. per fathom. The 12 east the winze on the junction has been carried up into unproductive ground, and is suspended. The 13 west stope, by four men, is worth 1 ton of lead per fathom At the surface we hope to complete the new pumping-wheel, with connections, against Tuesday next, and when this is at work we shall be in a position to go through large quantities of stuff on the floors.

MORFA DU.—T. Mitchell, Aug. 22: We have reached the hanging wall of the lode in the bottom end. The lode at this point is 7 ft. wide, 6 ft. of which is almost solid bluestone, and 1 ft. consists of black chert and shale, intermixed with blende and copper ore. There is still a little copper showing on the hanging side of the lode, and we have instructed the men to drive a little in that direction, in order to prove the ground, after which we shall open up the lode on the blue one course. We are still clearing out the old debris from one of the levels lately discovered, in which we find some leaders and patches of good bluestone or zinc ore.

NEW BRONFLOYD.—Thomas Kemp, Aug. 22: No. 3 Shaft, North Lode: The lode in the 121 end, west of winze, is worth 1½ ton of lead ore per fathom, in ground exceedingly hard for opening, consequently slow progress is being made. The stope over this level, east of winze, is worth 25 cwts. of ore per fathom.—Middle Lode: According to expectations stated in my last report it gives me pleasure to say that the lode in the 73 end, west of Curtis's cross cut, is exceedingly improved; now worth for the width of the level (5 ft.) 2 tons of ore per fathom, and leaving good ore standing on the south side of the driving, and I should say

as the drivage proceeds it will further improve. The part of the lode opened by the 52 end, east of the No. 2 shaft, carries stones of ore in ground favourable for progress. To facilitate progress the winze in the bottom of this level is being sunk in the country rock on the north side of the lode; when down about 2 fms. we intend to strip down the lode to prove the value of the same, &c. All the tribute pitches throughout the mine are without any change to notice since last report. Hauling and dressing going on as fast as possible, with a fair supply of water. Machinery in good working order.

NEW SOUTH MERLLYN.—B. Rowlands, Aug. 22: We have started to sink a sump in the north level, and the lode is of a highly satisfactory character.

NORTH LAXEY.—John Sowden, August 21: The lode in the 84 end is 2 feet wide, composed of spar, blende, and lead. It is letting out more water than usual, and improving for lead, but not sufficient to value at present. The stope in the roof of the 84 south is worth 30 cwts. of lead per fathom.

PANT Y-MWYN.—Enoch Parry, Aug. 19: I have visited this mine again this month (August) in company with one of the largest shareholders. I am pleased to see the mine is being taken notice of by the mining public. I was certain this would be the case, and have looked for it for some time since. The shareholders have my previous reports on the mine, and they can see by reference thereto that the lode being worked on is yielding lead ore in large quantities, as I told them it could not fail to do. The directors have already declared 3s. per share dividend on the working of the mine, and I can assure them that but a very small portion of the mine has been opened up as yet. I look forward to a great and rich lode being cut when the cross-cut north from deep adit reaches the north lode; judging from the ore that was raised from this lode by the old Pant-y-Mwyn Company farther east in years gone by. The Medlyn shaft is in course of sinking below the adit, and I understand is to be continued with all possible speed until a large section of lode is laid open; when this is done I have no hesitation in saying that the present price per share (as per *Mining Journal*) will be realised in one year, so that the shareholders should hold on, and better days are before them, and not far distant.

PARACOMBE.—C. H. Maunder, Aug 23: The drivage in the deep adit cross-cut is progressing very satisfactorily. No. 1 lode is now from 6 to 7 ft. wide, and has further improved, and shows a continuation of rich quality silver-lead for 30 fms. in length.

PARYS MOUNTAIN.—T. Mitchell, Aug. 22: We have nothing new to report in the 90 south this week, although the ground continues highly mineralised, and indicates favourably for a change.

PATELEY BRIDGE.—C. Williams, Aug. 22: The forebreast of the 30 east, on Rake vein, is still in a fine course of lead ore, and worth for the latter 8 tons per fathom. No other change.

PENHALLS.—S. Bennetts, P. Vian, Aug. 17: The south part of the lode in the 70 east end is worth 4*l*. per fathom, and in the west end the same part of the lode is worth 8*l*. per fathom; the north part is worth 5*l*. per fathom. The 60 east end is in the midst of broken ground, and the lode not very productive, although occasionally producing some good stones of tin. The 55 east end is at present between the two portions of the lode, and consequently is not yielding any tinstuff yet. The 48 west is worth about 8*l*. per fathom. Elsewhere there is not much change to notice.

PENNANT.—Aug. 22: The lode in the 13 east is opening, and looks as if we were coming upon a great body of mineral. In the 80 west we have raised since my last a splendid pile of leadstuff, and apparently it is a distinct lode running at the back of our levels. A sample can be seen at the London office, and inspection is invited. In the 20 east the lode is looking very promising, and we have had during the past few days some nice stones of lead. We are doing well on the dressing-floor.

ROMAN GRAVELS.—A. Waters, Aug. 22: The 110, north of new engine-shaft, is nearly, if not quite, up to the junction of the Roman with the caunter lode. We expect to meet with a good run of ore north of the caunter lode. The 110, south of shaft, is in a lode 5 to 6 ft. wide, worth 1 ton of lead ore per fathom. The 95, south of winze south of shaft, is in a lode 5 ft. wide, worth 2½ tons per fathom. The 80, south of Matthew's winze south of shaft, is worth 1 to 1½ ton per fathom. The 65, south of shaft, is worth 2 tons per fathom. The 40, south of shaft, is getting into the commencement of the ore ground seen in the 65. The stopes throughout the mine are quite up to late valuations, and all yielding ore in profitable quantities. Surface work going on well. We have to-day sold 180 tons of lead ore for 190*l*. 5s., and 25 tons of blende (not 20 tons as stated in last week's Journal) for 82*l*. 10s.

ROOKHOPE.—T. Davidson, Aug. 22: Adit Level: The stoping west from the old rise, No. 12 on section, has been poorer during the week, but I think if we had the place ventilated, which is our principal object at present, we shall probably find more ore off on each side; value 2 tons per fathom. Stoping in No. 13 is also very poor. This ground seems to be in a state of confusion, a number of cross heads coming in seems to be the cause; value 8 cwts. per fathom. Driving east from the rise, No. 11 on section, continues about the same as previously reported; value 12 cwts. per fathom, all east of Gin shaft.—Over the 42 Fathom Level: We have got the old winze sheathed up in No. 4 on section, east of Low shaft, and have commenced stoping east about 4 fathoms down from the 25 sole, and judging from the little we have done the place looks like continuing; value 12 cwts. per fathom. In stoping west from the same winze there is no change; value 8 cwts. per fathom. In sinking the new winze from this point to the 42 the ground has proved very hard, but we calculate upon holing through to open ground below in the course of a few days. The stoping in Nos. 7 and 8 is about the same as previously reported. The new rise in No. 3, on section, east of Gin shaft, is very poor, but we hope for an improvement as we get further up; value 8 cwts. per fathom. In the foremost rise in No. 7 on section, east of Gin shaft, we have finished sheathing up, and are commencing to go upwards; nothing done to value. No increase of water since previously reported on.

SOUTH CAMBRIAN.—A. Francis, Aug. 21: Good progress continues to be made in cutting ground and the laying down a permanent railroad through the deep adit level. The south part of the lode, on which we are driving and carrying 5 ft. (the lode being more than 20 ft. wide), is daily improving, being now composed of rich blende ore, with ribs of quartz throughout it of the very finest and best description. Undoubtedly we are passing over a very large body of lead ore, and which will be found at no great depth underneath our present workings.

SOUTH CONDURROW.—Wm. Rich, Wm. Williams, H. Abraham, Aug. 21: There is an increase of water in the 30 cross-cut north, which is an indication that we are near the main part of the lode. The 40, east of engine-shaft, is worth about 5*l*. per fathom. The 40 west carries stones of tin. The rise in the back of the 40 is worth 6*l*. per fathom. The 50, east of Plantation shaft, is worth 12*l*. per fm. The 50 west is worth 20*l*. per fathom. The 50, east of King's, is worth 10*l*. per fm. The 50, west of middle cross-cut, yields good stones of tin. The rise in the back of the 50 is worth 35*l*. per fathom. The 70 west is worth 7*l*. per fathom. The rise in the back of this level is worth 10*l*. per fathom. The 80 east is unproductive. The 93 east is worth 12*l*. per fathom. The 93 west is worth 10*l*. per fathom.

SOUTH DARREN.—H. James, Aug. 15: The water in the shaft is again in fork, and the 100 fm. level is communicated with shaft. We commenced to-day to take down the lode in the 90 forebreast; in a blast or two we broke some very rich lead ore, better than I have seen here before; its full size and value will be given next week. The lode in the winze sinking below this level has a splendid appearance, and improving every sinking; it is now worth 40*l*. per fathom. No. 1 stope, in roof of the 90, is worth 35*l*. per fathom; No. 2 stope is worth 125*l*. per fathom. No. 1 stope, in back of the 80, is looking better, and is now worth 25*l*. per fathom; No. 2 stope is worth 8*l*. per fathom. We sent out samples on the 10th inst. of 40 tons silver lead ore for sale to-morrow. The dressing is now going on more regular.

— H. James, Aug. 22: Setting Report: The 100 end west, to drive by six men, at 10*l*. 10s. per fathom; this level at present is full of stuff, but will be clear in a day or two. The lodge at the 100 is not yet completed, owing to the water being in so often. The 90 end, to drive by six men, at 10*l*. per fathom; the full size of the lode is not yet ascertained, for the width cut (6 ft.) is worth 35*l*. per fathom for lead and copper ores. The 90 winze, to sink by 12 men, at 2*l*. 2s. per fathom, to be carried 12 ft. long; the lode is worth 40*l*. per fathom. No. 1 stope, in back of the 90, by six men, at 3*l*. 15s. per fathom; the lode is worth 35*l*. per fathom. No. 2 stope, by six men, at 4*l*. per fathom; the lode is worth 25*l*. per fathom. The 80 winze, to sink by six men, at 12*l*. per fathom; I expect here to communicate with the 90 this month. The 80 forebreast is suspended for the time, and the men put to repair the top of engine-shaft. No. 1 stope, in back of the 80, by six men, at 3*l*. 10s. per fathom, and 8*l*. per fathom for driving in end of stope; the lode is worth 20*l*. per fathom. No. 2 stope, by two men, at 3*l*. per fathom; the lode is worth 7*l*. 10s. per fathom. The 40 tons silver-lead ore sold to the Panther Lead Company (Limited) on the 16th inst. realised 610*l*.

SOUTH DE EREBY MOUNTAIN.—W. Bennetts, T. Bennetts, Aug. 20: No. 1 Adit: The lode in the end driving north is quite as promising as before, letting out water freely, which is a good indication for the production of minerals. No. 2 lode is looking well; some splendid lead was broken in the end to-day. The lode in No. 2 adit is 2 ft. wide, composed of lime, spar, mundic, and lead—a most promising lode. The lode in the shaft sinking on No. 2 lode is still looking well.

SOUTH MOLTON CONSOLS.—T. Harris, T. May, Aug. 22: The ground in the adit cross cut continues to be of pretty much the same character as when last reported—killas and limestone, interlaced with gossan and branches of quartz.

SOUTH TOLCARNE.—W. Rich, J. Knotwell, Aug. 21: The 36 end east is being urged on as fast as possible; the lode shows good indications for producing copper, and the ground is easy for driving; this level was extended in the last four weeks over 13 fathoms. The lode in the 24 end west is about 2 ft. wide, composed of fluor spar and good stones of copper.

ST. PATRICK.—W. Francis, Aug. 21: There is more spar mixed with clay in the 120 yard level cross-cut north, with every favourable indication for a productive lode when cut, and I have reason for hoping this will be within a short distance of the present end, so that before making any trial on the last two joints cut I think it advisable to push on and prove what is before us. The 60 yard level cross cut is still in congenial and speedy chert ground. We have just crossed some small east and west partings.

TANKERVILLE.—A. Waters, Aug. 22: The 206, east of Watson's shaft cross-cut, is driven 3½ fms.; lode 8 ft. wide, worth about 2 tons of lead ore per fathom. The same level west of cross cut is driven 2½ fms.; lode 4½ ft. wide, worth about ½ ton per fathom. The 206 going west of Hooten's winze, towards the level coming from shaft, is driven 5 ft.; lode 5 ft. wide, worth about 2 tons per fathom. The same level east of winze is driven 4 ft.; lode 3½ ft. wide, worth 1 ton per fathom. No. 2 winze in the 192, east of Hooten's, is down 5½ fms.; lode worth 1½ to 2 tons per fathom. All other points as for some time past. We shall sample on Thursday in next week.

TEESDALE.—John Slack, August 15: The west end forehead in Holmes's level has been going with four men up to August 7, after which with two men only; it still continues to improve; the strength that came in from the west side has gathered itself together with a fair good cheek, and contains more lead ore than it has ever done since we first commenced; the Old Man, which we have now left considerably behind us, seems to have completely lost the point of the vein; he has attempted to follow it in a northerly direction, while we have followed it in a westerly point; we are in entirely whole ground, and we shall commence stoping the roof as soon as we can get two suitable men; it still remains very hard. The north end forehead in Holmes's level has continued going with four men, and remains pretty much as it was when we first broke into it, some days better and some days worse; the two men from the west forehead were set on stoping the roof, and have worked down a quantity of rich bouse; it is yielding well and looking well; this is also very hard. I am satisfied it is now only a question of good workmen, sharp tools, and plenty of dynamite so far as the inside of the mine is concerned. In the Old Man two men were set on to work a middling—a small piece of ground left in at some time behind one of the hoppers, and immediately above the level roof; it has yielded some very rich bouse, which I estimate from a rough calculation to yield between 5 and 6 bings of lead ore. Dressing has been going on with all the speed and force we can bring to bear upon it, and yet I am not satisfied; in fact, they do not get through as quickly as I should like; we are accumulating bouse much quicker than we can dress it, although we have all the machinery going, and a rough tub as well. We delivered 10 bings of lead ore on Monday, and other 12 bings will be ready on Wednesday.

TEMPLE.—August 21: No. 1 level driving west, by six men; the lode is a mixture of spar and blende for the whole width of the level; the indications are that we shall now reach a continuation of the ore ground discovered in the two levels above. No. 2 level driving west, by six men; the lode presents a very rich appearance, and is evidently improving as we get further into the mountain; the present produce is fully 1¾ ton of lead ore per fathom. No. 3 level driving west, by six men; the lode continues to show very good leaders of ore throughout; the produce is fully 1 ton of lead ore per fathom. The back of this level is quite as good as any other part, indicating that the lead ore may be expected to hold up near to surface, and that another level might be commenced above with a fair prospect of soon cutting into ore. The leet, or water-course, is now completed. We are of opinion that the work has been well and inexpensively executed, considering the nature of the ground through which it has passed. The wheel-pit is progressing rapidly. A portion of the new water wheel has been delivered on the mine, and the remainder, as well as the new crushing mill, will shortly follow. As far as the nature of the ground will admit, fair progress has been made underground during the past month, and at surface all dispatch has been and is still being used to forward the erection of the new machinery. The prospects at the mine are very encouraging, and inasmuch as the course of ore discovered in Nos. 2 and 3 levels has continued without intermission, and progressively increased in produce and value as extended upon, we are justified in the anticipation of greater improvements presenting themselves in the immediate future. A continuation of the lead ore found in Nos. 2 and 3 will no doubt be met with in No. 1 very soon, the appearance of the lode being similar to that in the upper levels just before the lead was cut into.

TOLGUS CONSOLS.—W. C. Vivian, Aug. 22: The lode has not yet been intersected, but there is an increase of mineral every foot we advance, which I think a very favourable sign that we shall find them good.

TYN-Y-FRON.—E. Jones, Aug. 20: We are going on with the cross-cut north in the eastern level; we have driven it 4 ft. 6 in. We have the mason at Cae Gynon repairing the wheel-pit and other places, and I have myself finished repairing the bellows, and put them in their place.

WEST GODOLPHIN.—John Pope, Aug. 17: Setting Report: Caunter: The 80 driving north, by eight men, at 7*l*. 10s. per fathom; the lode is 10 in. wide, of good quality tinstuff.—Wilson's: The 70 driving east by six men, at 6*l*. per fathom; the lode is 4 in. wide, worth 8*l*. per fathom for tin, a fine looking lode. The 70, driving west, by six men, at 5*l*. 10s. per fathom; lode 4 ft. wide, worth 6*l*. per fathom for tin. There is more lode standing in the side of the level. The 70, No. 1 stope in back east, by six men, at 4*l*. 4s. per fathom; lode 5 ft. wide, worth 7*l*. 10s. per fathom for tin. The 70, No. 1 stope in back west, by eight men, at 6*l*. per fathom; the lode is 9 ft. wide, worth 20*l*. per fathom for tin. The 70, stripping side of level west, by six men; the whole width of the lode is about 9 ft. of fair quality tinstuff, a fine looking lode. The 60, No. 1 stope in the bottom west, by six men, at 5*l*. per fathom; the lode is 8 ft. wide, worth 15*l*. per fathom for tin. The 60, No. 2 stope in bottom west, by six men, at 4*l*. per fm.; the lode is 5 ft. wide, worth 8*l*. per fathom for tin and copper. The 60, No. 3 stope in bottom west, by six men, at 4*l*. per fathom; the lode is 4 ft. wide, worth 7*l*. per fathom for tin and copper. There is more lode standing in the side, which will be taken down as soon as possible. The 60, No. 4 stope in bottom west, by six men, at 3*l*. 10s. per fathom; the lode is 6 ft. wide, worth 8*l*. per fathom for tin and copper. The 60, No. 5 stope in bottom west, by six men, at 3*l*. 15s. per fathom; the lode is 4 ft. wide, worth 7*l*. per fathom for tin and copper. There is more lode standing in the side, which will be taken down as soon as possible. The 60, No. 6 stope in bottom west, by six men, at 8*l*. per fathom; the lode is 5 ft. wide, worth 10*l*. per fathom for tin. The 60, No. 1 stope in back west, by four men, at 3*l*. 10s. per fathom; the lode is 3 ft. 6 in. wide, worth 6*l*. per fathom for tin. The 60, No. 1 stope in bottom east, by twelve men, at 6*l*. per fathom; the lode is 10 ft. wide, worth 18*l*. per fathom for tin.—Caunter: One pitch on tribute in the bottom of the 50 north, by two men, at 10s. in *l*., at a standard of 32*l*. per ton for the tin. Our machinery is working very well.

WEST GOGINAN.—John Kitto, Aug. 9: I have nothing new to report to you. The water, I am glad to say, is forking slowly, but the bottom, or 48 fm. level, is still nearly full to the roof, and I see no chance of working in that part of the mine for another week or 10 days. There has been very little change in the adit level since my last report, but the lode is still strong, and contains both lead and blende, and we are anticipating a further improvement, as we are getting near the point where ore has been discovered on the top of the hill.

WEST MARY ANN.—W. G. Nettle: We have sunk the winze below the adit level about 10 fathoms, the water is easy, and the lode of late has improved. We have an increase of carbonate of lime, quartz, barytes, and a good sprinkling of rich silver-lead ore; size from 2½ to 3 ft. wide, and the underlie much less than formerly, which we consider a good indication.

WEST ROSKEAR.—H. Stephens, W. Benetts, Aug. 22: The lode in the 24 is improving in character as the level is being extended towards the junction. The lode in Stephen's shaft is looking remarkably well, but the shaft is now down to the water, and consequently we shall have to suspend the sinking for a short time. We think, however, it will but be temporary, as the 24, driving towards it, will have a tendency to drain it. Lanyon's shaft is also down to the water, and we have put the men to drive the 12 west until the shaft is drained sufficiently to resume the sinking again, which we think will occupy but a few days. The balance-bob is connected with the engine, and we are now fixing the angle-bob underground, and preparing the work for draining the mine to the bottom.

WEST TANKERVILLE.—A. Waters, Aug. 22: The 86, south of boundary, is worth 1 ton of lead ore per fathom. No. 1 stope in this level south of winze, south of shaft, is worth about 15 cwts. per fathom. No. 2 south stope is worth 12 cwts. per fathom. No. 3 stope south 1 ton per fathom. The three stopes in back of the 75 south of shaft are worth together 2 tons per fathom. The winze in the 63 south of shaft is down 3 fms.; lode twitched up, and worth ½ ton per fathom. The richer part of the lode has dipped through the winze, but another bunch may be expected in depth.

WEST WHEAL TOLGUS.—Aug. 21: In the 145 cross-cut, driving south-west from the north part of the lode, there is a little ore in the capels and branches; we shall push this cross-cut on to cut the south part of the lode; probably it will take a month to reach it. The south part of the lode in the 145, west of No. 2 cross-cut, is yielding 2½ tons of ore per fathom. We have set a rise to put up in the back of this level between No. 1 and No. 2 cross-cuts on the south part, which will yield 5 tons of ore per fathom. In No. 3 winze the lode is looking rather better than it was, and it is now yielding 4 tons of ore per fathom. We are anxious to see this south part (which gives the ore) making larger, as wherever it has been large it has been very productive throughout the entire length in the 135. The lode in the 135 end west is improving in appearance, and the ground is better, with a little ore. The lode in the 120 end west is improving in appearance, and the ground is better, with a little ore. The lode in the 125 west is small and poor. The stopes are yielding very well. At Richard's shaft the lode, which is very wide, has a less underlie than it had, in consequence of which we are leaving it standing until the shaft gets deepened for the 155, and then cut through. We are carrying down the shaft on the line of the rods. The pitwork is heavy, so we must avoid making as little angle as possible. We think we shall have to sink about 2 fms. more to reach the 105. We sampled yesterday 290 tons of copper ore.

WHEAL CREBOR.—John Andrews, Aug. 20: The lode in the 120 east is 3 ft. wide, and worth 5*l*. per fathom. The two stopes in the back of the 120 are worth respectively 8*l*. and 12*l*. per fathom. In the 72 east we have just intersected a cross-course, but as yet have only cut into it about 1 ft., from which we have broken good stones of mundic. All other points are without change.

WHEAL KITTY.—Stephen Davey, R. Harris, Aug. 17: There is no change in either of the points of operation calling for remark this week.

WHEAL RUSSELL.—John Bray, Aug. 22: The lode in Maria shaft continues its size, and is very promising in character, composed of gossan, strong capels, and quartz, with little black and yellow copper ore and mundic throughout—5 ft. wide. No improvement in the 25 fm. level.

WHEAL UNY.—Wm. Rich, M. Rogers, Aug. 19: The lode in the back of the 60, west of incline shaft, is worth 8*l*. per fathom. The 130, east of King's, is worth 9*l*. per fathom. We are driving a cross-cut north in the 130 west to intersect the main part of the lode; we think it is standing whole above this level. The 140 end east is unproductive. The 150 east is worth 7*l*. per fathom. In the 150 west we think the main part of the lode is gone off to the north of the present level; we have set the men to prove it. The 160, east of Goodinge's, is unproductive. The 160, west of incline shaft, is worth 9*l*. per fathom.

BWLCH UNITED MINES—CARDIGANSHIRE.

Some few months since energetic operations were commenced at the Bwlch United Mines, in Cardiganshire, and Mr. C. C. Marvin, having just returned from his third visit to the property, has written the subjoined report for the information of the shareholders. It appears that enough has been subscribed privately to work the mines with all energy for over two years, and it is mentioned that although they have worked since February last they have not made a call, nor do they intend to make one for some months. Their prospects are considered to be excellent, and Capt. N. Bray has done wonders:—

Aug 10.—In accordance with the desire expressed in your favour of the 28th ultimo, received on the mines, I now have pleasure in writing you on the subject. As you are aware, on my second visit to the mine, in May of last year, I gave you an epitome of my opinion, which I at once carried out by taking shares in the property. At the aforesaid time it was thought it would necessary to erect a new 50-ft. pumping-wheel in place of the then existing one; but by judicious repairs this has been obviated, and the wheel now made good will last for years. This has not only been a saving to the company of a pretty large outlay, but also of time. The manager had orders to commence operations on Feb. 6 last, that being the time when the necessary surface operations could be safely inaugurated, and I will now briefly state the work which has been accomplished to date. The large pumping wheel has been put in good repair; from this wheel a line of horizontal rods 150 fms. (900 ft.) in length has been fixed, with pulleys and stands; also stands of masonry for travelling wheels to break the angles and other excavations, such as cutting or clearing ground for the lines of rods, fixing pumps, connections, &c.

RITCHIE'S, OR DRAWING SHAFT.—On this important work a force has been employed in clearing stuff, timbering, and securing ground. There are now three shifts of men at work in this shaft, squaring the same, and cutting lodge or plat to land stuff at the 90. I may state that when I left this work was nearly completed, and sinking being resumed. A new line of rods, pulleys, and stands, with angle bobs from the 40 ft. drawing-wheel to the above-named shaft, 250 fms. (1500 feet) in length, has been erected, as also a new line of pulleys and stands from the said wheel to shaft for the 3¼-in. steel wire-rope, 280 fms. (1680 feet) in length; this rope was expressly made for the company by an eminent London firm. The line of pulleys is so arranged that the friction is minimised, the pulleys working or travelling on their own basis or iron rods; the wire-rope is worked by the recently erected drawing machine, strong and substantially put together. The drum is 6 ft. in diameter; in this machine the company possesses the largest and best piece of machinery in the county. A house has been erected to contain the same, and to economise, roofing slates have been taken from a disused building, and old iron on the surface broken up by dynamite and sold to the foundry to pay for the castings. The 40 ft. drawing-wheel is thoroughly renovated, and, as recommended, a bonnet will be put on before the severe weather sets in. The manager, in order to utilise the surface water, has obtained a greater fall than formerly, dispensing with the large launders formerly used, obtaining at the same time the same power with less cost. The launders in connection with this wheel are 70 fms. (420 ft.) in length, all new timber, with stands, iron stays, and clamps, well and strongly put together. A quantity of old iron has been made use of for making stays, screws, bolts, &c. There is plenty of this iron stored for use. It will thus be seen that since instructions were given to start the mine that the 50-ft. pumping-wheel has been repaired and put in working order. Two lines of iron rods put up 400 fms., or 2400 ft. in length, with their accessories. The mine has been completely forked or drained of water to the 90, and the main or drawing shaft has been cleared, timbered, secured, and squared at bottom with plat-cut. The fine 40-ft. drawing wheel has had any slight defects made good. A drawing-house has been substantially built to cover the drawing-machine. A line of stands with travelling pulleys for wire-rope, has been put up. Shaft bob with pedestals and stands and balance-bob. A line of launders 70 fms. in length provided, &c.

The cost to accomplish the work, including all materials and other expenses up to and inclusive of July 20 last, has been, including stores in hand, 870*l*. Thus enumerated:—Underground and surface labour, 266*l*.; carriage account, 25*l*.; merchants' bills for timber, wire, rope, &c., 195*l*.; agency, salaries, &c., 84*l*.; total, 570*l*. It is intended to continue sinking the main or Ritchie's shaft, and nine picked men have taken the same on contract at 19*l*. per fathom. This important work will be prosecuted with all speed, and the mine laid open for a permanency by levels driven on the course of the lode. Having present the riches that have already been taken out, and those from the same lode at the adjacent mine some few yards distant, at a much deeper point, there can be but one opinion to unprejudiced minds, and this opinion is also shared by the manager and other professional miners well versed in the stratification and run of the veins in Cardiganshire, that there is much to be gained for the future in sinking and driving. This, the most essential feature in mining, will be carried out with all energy, and I have no doubt that ere long the value of the property will be much enhanced. The 60 fm. level, east of Ritchie's shaft, is also being cleared out, and a thorough investigation made; important discoveries are looked for at an early date. During my visit a blast was put in the bottom of the 50 fm. level east from shaft, and very fine stones of silver-lead ore were broken therefrom; of these I took a few samples, which you have seen. A professional miner of great and varied experience in the district, who happened to be on the mine at the time on business, also examined the same, and expressed himself strongly on the capabilities of the lode and its future success. These capabilities are well known to you, you having in your offices account sales of ore raised by the last company to the value of 57,372*l*. We are now entering the second run of ore ground, from which good returns are being made by the adjacent mine. Our levels will extend 100 fms. with 10 fms. stopes, 100 by 10 fms., equal to 1000 fms. stoping ground to each. The ore is rich in silver, and at the present low price would command 14*l*. 10s. to 14*l*. 15s. per ton, thus giving to the company a tangible advantage over other lead mines, although it costs no more to produce, it has a direct gain of 50 per cent. in the market value of its produce. With peace assured, an advance in metals and a general revival of trade may reasonably be expected, and having in view the small capital which will be required and the satisfaction I felt on visiting the mine, I can in all good faith recommend the Bwlch United to those investors who may be desirous of joining a legitimate undertaking, and I am sure the management will be only too glad for any of the shareholders to visit the property and see for themselves what is being done with their money.—C. C. MARVIN.

PANT-Y-MWYN LEAD MINE—SPECIAL REPORT.

Aug. 9.—Respecting this mine, first we have three lodes—the Pant-y-Mwyn lode, the north lode, and the south lode. The Pant-y-Mwyn lode is the one we are working at present. We are driving two cross-cuts, one to the north lode and one to the south lode. From the day level the north cross-cut has been driven 34 yards, and at 40 yards more we shall cut the north lode. The lode will be unwatered to 100 yards deep. The south cross-cut has been driven 23 yards at that point, and the vein has been cut, composed of lead ore, spar, and limestone, showing well for the south lode. We are at present working the Modlyn section from Griffith's shaft. This shaft has been sunk 20 yards below the day level, making 130 from surface. Three levels have been driven east and west. The east is being driven 119 yards over runs of ore for 20 yards 2 ft. wide. The 30 yards level east has been driven 23 yards on the lode, and will soon meet the large runs of ore which have been met in the 20 yards level. In the 20 yards level east there is a cross cut driven 6 yards from the old lode to the new lode. Ore has been cut 6 ft. solid in this part, and continues to turn out well. The west level has been driven 70 yards on the lode, cutting several runs of lead ore. At 68 yards a sump was sunk through good ore 2 ft. wide, but had to stop until we get a level deeper to take the water. To the east of this shaft we have a shaft sank on the same lode called the Modlyn shaft: this shaft was sunk on to the day level 100 yards, and we intend to sink it 100 yards deeper, making 200 yards from surface, then to drive levels on the lode. The last price we received for our ore was 12*l*. per ton. We have 100 tons or more in stock.

Pant-y Mwyn, Mold, Aug 9. T. HUGHES.

THE WEEK.

SATURDAY, AUG. 17.—A second telegram respecting the flood in the neighbourhood of the Richmond Mine was received to day, and the directors state that the flood cannot possibly cause any damage to the mine, as it is situated on the hills, some 2½ miles away. Many would have been glad to have known this yesterday, when the shares were forced down to 7⅛. It now seems rather odd that the first telegram should have been sent at all. The shares improved to 8*l*. The low prices reached in Egyptian Unified and Preference brought in a few buyers. Both improved 1*l*., closing at 47¾ and at 69 respectively. Tramway shares were thus quoted:—Belfast, 10 to 10½; Dublin, 15¾ to 16; Edinburgh, 16¼ to 16½; Glasgow, 12½ to 12⅜; Hull, 15¾ to 16; Leeds, 12 to 12½; Liverpool, 13⅛ to 13¾; London Street, 14¼ to 14½; North Metropolitan, 16¾ to 16⅞; Swansea, 9 to 9½; Wolverhampton, 11⅛ to 12¾.

MONDAY.—A marked recovery took place in Egyptian stocks. The Unified opened at 48¾, or 1*l*. higher, and finally closed firm at 51¼. The advance in the preference was from 68¾ to 71. The Daira Sanieh rose 3*l*., but the other issues showed no change. Only a small business was done in Turks, the Fives closing at 13. In mines, Richmond were in demand, and rose to 8½. The directors of Frontino have received a remittance of gold valued at 3610*l*., and the accounts for May show a profit of 1617*l*. A few more returns like this will make the shares emerge from their sluggish quotation of 1¾ to 2.

TUESDAY.—Before official hours Egyptian Unified were quoted 52⅜; at one time during the day the Bonds touched 50½, and finally left off at 51¼. A good business was done in Richmond and Eberhardt and Aurora, both of which rose 10s., the former closing at 8¾, and the other at 4¾. The week's run of Richmond was 860,000. The encouraging report from the Frontino Mine sent the shares up 10s., to 2¼, 2½. Javali, 9s. to 11s.; Gold Run, 8s. to 10s.; Aberdaunant, 5s. to 7s.; Cardiff and Swansea, 1¾ to 1⅞; Bilson and Cramp, 2 to 3.

WEDNESDAY.—To a small extent the fluctuations of yesterday in Unified were again repeated. In the morning business was done at 52½, but at the finish the price was only 51¼. The reported readiness of certain relatives of the Khedive to cede their estates for the benefit of the State creditors does not seem to brace the market up very much. Turkish Fives are now only 12½, having fallen steadily away from 17; the 1873 Loan, a short time ago over 20, has now receded to 14. The Treasury Bonds show a fall of 10*l*. from the highest reached. The Great Western dividend was announced as 3½, same as last year, and the stock closed 1*l*. lower.

THURSDAY.—There are still two other railway dividends to be announced—North British and Caledonian, and only a few more days now remain for these stocks to be manipulated in the usual way at the expense of the Southrons. Nearly all the heavy companies show a falling off in receipts, but this has been more than counterbalanced by the low prices paid for coal and iron. At the Midland Railway meeting it was stated that 6s. per ton was now paid for coal, the price in 1873 having been 18s., the difference resulting in a saving of some hundreds of thousands.

FRIDAY (*Opening*).—Last night Egyptian Unified were freely offered at 50¾; they are now 53¾, for it is reported that the Khedive is yielding to the views of the commissioners, and has already offered to give back large estates and two millions in money. The preference are up of to 72. Turks shows no favourable change. In mines the chief feature is the rise in Frontino and Bolivia to 3. Richmond, 8¼ to 8⅜; Eberhardt, 4 to 4½; Kapanga, 1½ to 1¾.—*Two o'Clock.*—Further large buying of Egyptian stocks has been going on all the morning. The Unified are now 55, and the preference 74. Last Friday I had to call attention the Unified being suddenly forced down to 46¼. In mines, Richmonds have given way, being now no better than 8 to 8¼.—*Four o'Clock.*—Railways relapsed, Dover, A, being especially weak at 125; neither do Egyptians close at the best, there being sellers now of the Unified at 55 and of the preference at 74. Turkish Fives, however, have improved to 13¾; Richmonds, 8¼ to 8¾; Kapanga, 1¾ to 1½; Frontino, 3 to 3¼; Chapel House, 2¾ to 3¾; Newport Abercarn, 3½ to 4½.

FERDINAND R. KIRK.

PROFESSIONAL CHARGES.—The case of Boscaswell Tin and Copper Mining Company was before the Stannaries Court, on Thursday.—In this case Mr. R. M. Paul, solicitor for the official liquidator, said that an objection had been raised to the effect that Mr. Smith was not entitled to his costs as directed to be paid by the official liquidator by an order of the Court made at the last sitting, in consequence of his being a trustee.—Mr. Dobell appeared for Mr. Smith, who, it it will probably be remembered, appeared in this Court in May last, to show cause against an order *nisi* calling upon him, with others, to contribute a certain sum towards the assets of the company. That gentleman being a solicitor, defended himself, and claimed the usual professional charges, which Mr. Paul held he was not entitled to as being a trustee of the company.—Mr. Dobell contended that his client was not sued as a trustee, and that although he might be a director, yet the money they were trying to get from him was money out of his own pocket. He thought that a trustee, if sued, and being a solicitor defended himself, would surely be entitled to receive any charges incurred in the defence.—His Honour said he was convinced Mr. Dobell's was the right view of the case, and that Mr. Smith was entitled to his professional charges. It was not a case of a trustee making profit out of the duties of his office, but it was the case of a director against whom certain charges were brought, and who chooses himself—not by a solicitor—being a solicitor, to conduct his own defence. Judgment accordingly.

The Hull Street Tramways Company report recommends a dividend at the rate of 9 per cent. per annum, which will absorb 2700*l*., and leave 100*l*. to be carried forward. In accordance with the Act of Parliament authorising an increase of capital, the directors allotted to the shareholders, at 4*l*. premium, 1400 new shares, which produced 19,600*l*., out of which 14,000*l*. has been paid to the Continental and General Tramways Company, and 5600*l*. will be placed to the reserve fund.

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MESSRS. PELLY, BOYLE, AND CO.,
SWORN METAL BROKERS,
ALLHALLOWS CHAMBERS, LOMBARD STREET, LONDON.
(ESTABLISHED 1849.)

The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, AUG. 23, 1878.

IRON.	£ s. d.	£ s. d.
Pig, GMB, f.o.b., Clyde..	2 8 6-	—
,, Scotch, all No. 1 ...	2 9 0-	3 10 0
Bars, Welsh, f.o.b. Wales	5 2 6-	5 5 0
,, ,, in London.	5 15 0-	—
,, Stafford., ,, .	6 15 0-	7 10 0
,, in Tyne or Tees ...	5 5 0-	5 10 0
,, Swedish, London ..	9 0 0-	9 10 0
Rails, Welsh, at works..	4 15 0-	5 0 0
Sheets, Staff., in London	8 5 0-	—
Plates, ship., in London	6 15 0-	6 17 6
Hoops, Staff.	7 10 0-	—
Nail rods, Staff. in Lon.	6 2 6-	6 15 0
STEEL.		
English, spring 13	10 0-19	0 0
,, cast 30	0 0-40	0 0
Swedish, keg.....14	0 0-	—
,, fag. ham. 15	0 0-	—
LEAD.		
English, pig, common...16	5 0-16	10 0
,, ,, L.B.....16	12 6-	—
,, ,, W.B. 17	0 0-	—
,, sheet and bar..17	5 0-17	10 0
,, pipe.....18	0 0-	—
,, red 19	0 0-	—
,, white 24	5 0-26	0 0
,, patent shot ...21	0 0-	—
Spanish.....16	0 0-16	2 6
NICKEL.		
Metal, per cwt 18	0 0-20	0 0
Ore, 10 per cent. per ton.24	0 0-26	0 0
QUICKSILVER.		
Flasks of 75 lbs., ware. 7	0 0-	—
SPELTER.		
Silesian..... 18	0 0-	—
English, Swansea 18	0 0-	—
Sheet zinc 21	10 0- 22	10 0

TIN.	£ s. d.	£ s. d.
English, ingot, f.o.b...	63 10 0-	—
,, bars ,, ...	64 10 0-	—
,, refined.....	65 10 0-	—
Australian	59 15 0-	—
Banca	62 0 0-	—
Straits	59 15 0-	—
COPPER.		
Tough cake and ingot.	66 10 0- 67	10 0
Best selected	68 0 0- 68	10 0
Sheets and sheathing .	71 0 0-	—
Flat Bottoms	74 0 0-	—
Wallaroo	70 0 0-	(nom.)
Burra, or P.C.C.	69 0 0-	—
Other brands	64 0 0- 65	0 0
Chili bars, g.o.b.....	61 5 0-	—
PHOSPHOR BRONZE.		
Bearing metal	£112	0 0
Other alloys	£120 0 0- 140	0 0
BRASS.		
Wire	7½d.-	8d.
Tubes.....	7½	- —
Sheets	8¼	- 8¼
Yel. met. sheath. & sheets.	6	- 7
Nails composition.....	8¾	- 9

TIN-PLATES.*	per box.	
Charcoal, 1st quality ...	1 0 0-	1 2 0
,, 2nd quality ...	0 19 0-	1 0 0
Coke, 1st quality	0 16 0-	—
,, 2nd quality	0 14 6-	0 16 0
Black .....per ton	16 0 0-	16 10 0
Canada, Staff. or Gla., at Liverpool	11 10 0-	12 0 0
Black Taggers, 450 of 14 × 10	30 0 0-	—

* At the works, 1s. to 1s. 6d. per box less for ordinary; 10s. per ton less for Canada; IX 6s. per box more than IC quoted above, and add 6s. for each X. Terne-plates 2s. per box below tin-plates of similar brands.

REMARKS.—Our markets have been singularly quiet, but, notwithstanding the small amount of business transacted, prices have been pretty fairly maintained. In order, however, to obtain anything of any magnitude sellers have had to submit to slight concessions in special instances; but, as far as can be ascertained, there seems to be a general disinclination to operate. The holders of the raw material are mostly losers in accepting current prices, and manufacturers cannot get buyers to increase their limits. All round there appears to be little or nothing doing, and more lifeless markets we never before witnessed; everyone is waiting to see what somebody else will do, sellers are waiting for buyers and buyers are waiting for sellers to come out, and it remains to be seen which is the weakest and which the strongest. The question is who can hold out the longest; will buyers move up or sellers go down, the present inactivity cannot possibly last much longer, and a change for better or worse must soon follow. Are prices to be higher or are they to be lower; and, if altered, what effect will be produced? Uncertainty is apparent everywhere, and it is difficult to foresee the consequences. Sellers declare they cannot afford to take lower prices, and buyers, on the other hand, declare they cannot pay such high ones. But what is to be the end of it all? Is there going to be a grand smash up? because further depreciation will quickly bring it about; or are we going to have a favourable turn in trade, and lively and improving markets? Things have arrived at that stage which is considered critical, and everybody is in an anxious state of suspense regarding the future. The reasons for and against business are freely disucussed, but no very decided opinions are formed,

Those who have previously held strong opinions in favour of trade have been so utterly mistaken that they scarcely dare venture to place further faith upon their own ideas, and they give up thinking anything at all about it now, and just take things as they happen to turn up, but there are others who are looking forward with great expectations towards the autumn, and hope to see a thorough change in the whole aspect of affairs, and they ground their belief chiefly upon the abundant harvests that are reported in many parts of the world, but will this be sufficient to bring about the change? They argue that it will, and further show that "peace and plenty" united must certainly bring to us prosperity, and happiness, and power. But there are others who are less confident, and some who give up in despair, and do not believe in a revival, they point to the bad state of trade, they are alarmed at stocks, they feel uneasy about money, they do not like the look of politics; they say the Exchanges are bad, the foreign markets are glutted, and altogether they take a very gloomy view of the future. Opinions are most conflicting, but the next month or two will probably decide the fate of the markets, for if the demand should not improve by September or October there is no chance of it doing so before the spring of next year, and in the meantime we shall have to prepare for serious trials and losses. The absence of orders at the present time is very distressing, and the manufacturing districts must be suffering immensely. Every effort should be put forth to lessen cost of production and manufacture, for our commerce can only increase by due attention to these matters. Promptness and punctuality are also necessary conditions to be observed. Many orders have to be executed abroad because our works are slow and dilatory. The workmen we fear are too independent here, and want too much their own way, not only with regard to wages but also the hours of labour, and are too much clogged with Trade Union rules. If a merchant wants a particular pattern the reply comes that it is against the order of the Trade Unions, and it cannot be done. What is the result, the order is sent elsewhere, perhaps to America, and is satisfactorily executed, and shipped away. This is most absurd on the part of the English Unions; do Trade Unions suppose for one moment that they can dictate to buyers what they shall buy—it is preposterous, for the buyer will only take what he likes, and if he cannot get it made in England he can in America, or on the Continent. But how is the trade of England to revive while such obstacles and evils as Trade Unions exists in the land.

COPPER.—The great event of the week came off last Tuesday, when 934 tons of Australian copper were sold by public auction. The Wallaroo cake sold from 69*l.* 12s. 6d. to 70*l.* 17s. 6d., averaging 69*l.* 18s.; 210 tons having realised 70*l.* and upwards. There were no ingots offered in this sale. The bidding was not at all well supported, which can be seen by the wide difference of 25s. between the various lots, and had it not been for the efforts of one firm in particular, who bought more than half the copper, the price would undoubtedly have dropped still lower, especially as two or three of the principal buyers in the previous sales were conspicuous for their silence, and the Birmingham buyer did not show up. Mr. Kenneth James stated that the Moonta Mines might shortly be closed, but the buyers did not take it exactly in the light in which the announcement was probably intended, and consequently it produced no effect. The Wallaroo sale ended, Messrs. James and Shakespeare then offered 18 tons of ingots of the brand Deer Brothers, which were disposed of at 65*l.* 7s. 6d. to 65*l.* 10s. The next sale in order of rotation was that of Messrs. Fry, James, and Co., which, to the credit of Mr. James of this firm, whose quiet and gentlemanly bearing always procures for him a calm and subdued hearing, was proceeded with in its accustomed orderly manner, and consisted of 150 tons of Burra, chiefly ingots, there being only about 31 tons of Cape, and the price obtained for it was 68*l.* 10s. to 68*l.* 15s., averaging 68*l.* 12s. 5d., and the 120 tons of ingots 68*l.* 10s. to 68*l.* 15s., averaging 68*l.* 12s. The prices realised appear exceptionally low in comparison with the price of Chili bars, and seemed to take some people a little by surprise, and we fear they can scarcely be deemed satisfactory by the Australian companies. Mr. James stated that the Burra Company offered all the copper they held in stock in London. The last sale announced to take place was that of Messrs. Vivian, Younger, and Bond, who had issued catalogues stating that they would offer 57 tons of G.W.C. brand for sale, and when it came to their turn to ascend the pulpit, and Mr. Turnbull, one of the partners of that respected firm, put in an an appearance, he took his seat amidst the applause of the room, and at once commenced by soliciting a bid for lot No. 1. A bid of 64*l.* was made, but this seemed rather to offend the dignity of the auctioneer, and he was evidently not in a humour to be joked with to that extent, for his views were of a far loftier character, and so he respectfully, but firmly, declined to accept it. An improved offer of 64*l.* 5s. was then made, but that met with no better success than the former; at last a buyer timidly, but politely, intimated that he would venture to give 64*l.* 10s., and here the sale for a time stuck fast, till at length time going on, and no progress being made, the buyers became somewhat restless, and enquired of the auctioneer—"Pray what price would induce him to sell the lot," and he in the most condescending manner named 66*l.*, whereupon the buyers tendered him their best thanks, placed their hats upon their heads, and walked home, leaving the whole 57 tons of G.W.C. brand Australian ingot copper on the hands of the poor discomfited Mr. Turnbull unsold.

The wording of catalogues—"For sale by auction"—is rather open to objection, for when buyers read these words they are carried away with the idea that a *bona fide* sale is about to take place, and it is very excusable if they feel a little chagrined when they become acquainted with the fact that the words were never intended to convey that meaning, but only an invitation to make a public tender, to be accepted or not at the option of the auctioneer. Now, a buyer has a great objection, in a general way, of making known even privately what price he is able or willing to give until he knows it is pretty sure to be taken; but to do so publicly, before every other buyer, and then to have a reasonable offer rejected, that offer in the present instance being within 17s. 6d. per ton of the price at which Deer Brothers had been sold a few months before, is scarcely, in our opinion, a fair and courteous mode of treatment. An auctioneer may entertain an opinion that what he is selling is worth more than the price offered; but, although he may be occupying an elevated position, yet he should not have too high an opinion of himself, for there is a certain amount of deference due to the room, and he ought to bow to the decision of the majority. It only shows what a difference there is between auctioneers, for in the course of the Wallaroo sale Mr. Kenneth James more than once remarked that the price he was accepting was below what he verily believed the copper to be worth; nevertheless, there was not even one bid that he treated cavalierly. The market to-day for copper is quiet, and prices somewhat easier; 61*l.* 15s, has been paid for Urmeneta, 61*l.* 5s. quoted for g.o.b.'s, and 62*l.* 3s. mixed numbers, prompt; Wallaroo, 70*l.* nominal.

IRON.—No fresh feature of an improving nature is noticeable as yet, and the general tendency of the market is still towards dulness. Whenever a change will take place for the better is exceedingly problematical, and we should certainly advise no one to anticipate any speedy recovery, for, from all we can gather of the prospects of the trade, there are no grounds for encouragement, but, on the contrary, with the exception of some expression of hopes, at which point all the improvement realised and expected seems to terminate, there is actually nothing to build upon, and if there should be a fair ordering autumn demand we ought to consider ourselves extremely fortunate, but, as this seems somewhat doubtful, it would be better to avoid speculating on the future altogether. Disappointments have fallen thick upon the trade this year, and it is quite time they ceased entertaining speculative ideas, for they become very expensive luxuries if indulged in too frequently or allowed to exercise undue influence for an unreasonable period. It is remarkable that the iron trade of England appears to be declining, while that of the Continent and America is progressing. A very short time back only certain statistics were published relating to the progress of the American iron trade, and the figures clearly proved that the production was increasing, and, if increasing, it is only a fair conclusion to draw that the development had been attended with a successful result, and this week the official returns of Germany have come to hand for the first six months of the year, and compare favourably with those of the corresponding period of 1877. The quantity of iron exported from that country shows a great increase—from 10 to 60 per cent., whereas the imports, on the other hand, show something like an equivalent reduction.

The falling off in the chief items of imports is said to chiefly affect the English iron trade, and must at once be taken into account. There is evidently something radically wrong about the management of the iron trade of this country, which requires to be carefully and immediately looked into, for it seems almost impossible with all the advantages we possess in obtaining abundant supplies of coal and iron ore, that foreign countries should be able to compete successfully with us, and actually to take the trade out of our hands and increase their make, while we, on the other hand, are forced to decrease ours by reason of a diminished demand. Either we are behindhand in our mode and process of manufacture, or less economical in the cost of production, but, whatever the cause may be, it ought to be enquired into without a moment's delay, and, if possible, put right, for until some alteration is made there will be very little chance of a change for the better.

A more melancholy state of things than at present exists could not well be, for the iron trade in previous years has been one of the main supports of the kingdom, but now it appears to be fast decaying, and many of the places that we for merly supplied are not only now supplying themselves but also some of our other customers that used always to come to England, and more than this the iron is imported into this country and positively sold with a profit at a less price than our ironmasters declare they can supply it for. America is not only entirely lost to us but also the greater part of the Continent, and there is very little more left to us than the local demand and India, and our colonial possessions, but these, as we have already stated, are largely supplied by foreigners, and Belgian iron is now freely sold in India. It is not enough for iron producers to say all that can be done has been done; it is no such thing, for such a lamentable state as we are now in would never have happened with capable and efficient men to govern and control the trade. We can quite understand that by our supplying rails to foreign countries it has helped to develope the resources of those countries, and they could in course of time be severally enabled to supply their own requirements, but what chiefly concerns us is that in addition to satisfying all their own wants they enter our markets and appropriate the orders, and this is not a thing of to-day but has been going on for the last few years, and if allowed to continue will, doubtless, end in the annihilation of the English iron trade. But what a reflection is this upon the leaders of the trade; everybody can see that the ground is being cut away from under them, and yet, judging from their inaction, one would suppose that they are insensible to the dangerous position in which they are placed. The interests of the iron trade of this country are wide-spread, and is not merely the large landed proprietors on whose estates the minerals exist, and whose incomes are derived from this source of wealth, but there are an immense number of merchants and dealers who are dependent upon the successful carrying on of the trade. Will no effort, therefore, be put forth to save the trade, or will it be permitted to depart from our shores for want of proper looking after?

We have often heard of the indomitable courage of an Englishman; we have hitherto been considered a great commercial nation; we have a reputation for being industrious and persevering; we have an eye to the main chance; we have plenty of money, plenty of brains, too, we hope, and a good constitution; and yet with all these acquisitions we seem to be wanting in knowledge, or ability, or disposition to preserve one of the best and largest trades in the world. The difficulties of forming a trade are sometimes great, but ours was already formed, and all we had to do was to keep it together, and not allow foreigners to come in and cut us out. It is not that we feel jealous of the progress of other nations, for so far as the producing countries are concerned the loss of their custom might naturally be expected; but we do not hesitate to pronounce it a lasting disgrace on the part of our makers that foreign iron should be imported into this country below the prices of English iron. If they were worked out it would be quite another matter; we will not refer to inland districts, where the cost of carriage adds on too much to the price and the railway rates ought to be reduced; but take such districts as Middlesborough and Wales, where the works are situate near to the shipping ports. How is it that with similar facilities of steam or water communication which they possess in comparison with the Continent that they cannot deliver iron in London as cheap as Belgium? The Belgian works have land carriage as well as water carriage to pay, and therefore are certainly no better situate in that respect than our ironmasters; only there is this difference—that the one is done so much cheaper than the other. But if freights can be worked cheaper with foreign crews than with English, why should we not also have foreign sailors; and if foreign workmen will work cheaper, why should not foreign labour be imported. The salvation of the trade calls for some radical change, and it must be taken in hand forthwith; either the whole system upon which we have been working for the last few years must undergo an entire alteration, or there will be little of the trade left, and England in time will decline to a mere agricultural region. The iron and coal trades are so intimately connected that the one necessarily affects the other to a very considerable extent, and any falling off in the manufacturing department of the iron trade diminishes the demand for coal; but the mischief does not rest here, for there are many factories where coal is largely consumed depending upon the manufacture of iron here, and whenever that is reduced their work is likewise reduced, and will cease whenever the manufacture of iron ceases in England. Can anything be more unsatisfactory than to see what was once a prosperous trade gradually dwindling away, and being taken up by more enterprising and skilful neighbours? And what is the reason of it all? Neglect, apathy, and stupidity. We are either too slow or averse to adopt modern improvements. The landlords or owners leave their tenants or the occupiers to fight out the battle. The men quarrel with their bread and are discontented, and the whole trade is utterly disorganised.

To leave matters as they are to work out their own cure is simply to abandon the trade entirely to more efficient and able men, but we cannot think so meanly of our own countrymen; at the same time they want a great deal of stirring up to rouse them to a sense of their danger, but everyone should determine to keep up an unceasing agitation until the trade has undergone a thorough reorganisation, and placed in a sound, healthy, and thriving condition. Yet with all the drawbacks at present attached to the trade there are some few who have been madly rushing on, endeavouring to make matters worse by trying to establish higher prices, one would think that the miserable, deplorable, and hopeless state into which the trade had fallen would certainly have received some consideration at their hands; but it is not so, and all they care about is to make a successful speculation. It matters not to them what becomes of the legitimate trade, that is of no consequence; their argument is, let those who are concerned look after that for themselves, we want the price up, and no matter if it drives the trade eventually to other parts as long as we do well. Against such selfish and unscrupulous agitators there can be but one feeling, and if we are not very much mistaken, instead of having the satisfaction of having prices up, they will in all probability see them lower. To some it may seem strange that the interest of the trade can be promoted by a reduction in prices, but when we plainly point out that our object in advocating lower prices is to overcome competition we think they cannot fail to see the force of the argument. It will scarcely be disputed that the preponderance of wealth is on this side, and if the present prices leave a loss to all producers we can hold out the longest, but it is altogether another thing if while we are incurring losses our neighbours are effecting profits. They accept orders which we reject, and in some instances execute them at 5s. or 10s. below our rates, and not an occasional order only is lost in this way, but many and many an order. The masters may say it is a question of wages, and, doubtless, that may have a good deal to do with it, but relief might be obtained in many other ways than by cutting down wages, and if the men submit to work for less money landlords ought to lower their rents, and make easier terms, that the burden should not entirely fall upon the poor working man; and the railways ought to do something in lowering their carrying rates, and Trade Unions and trade combinations condemned as illegal and injurious.

There is little or nothing of any importance to be noted from the various markets throughout the kingdom. Comparatively no change has taken place during the past week, and business in this metal has remained as before reported. It is true that in a few cases sellers have to a certain extent given somewhat flourishing descriptions of the trade, and of the probability of its shortly rising out of its degrading position, in the hopes that by so doing they may dazzle the minds of buyers with the present low quotations, and so make them give out their orders, fearing that by delay prices may rise, and thus they will be unable to place their contracts so advantageously as at present. This course on the part of the producers has been a source of many a discussion, we need, therefore, say little on the subject; suffice it to state that it is only likely to ruin the trade of this country altogether, for at present there are no grounds whereon such a supposition can be based. It is reported that great dissatisfaction prevails amongst the working classes in North Staffordshire at the reduction of 10 per cent which was made last week in the men's wages. This reduction is said to cause the average rate per man to be under 10s., and although it is stated that on last Friday many of the men went out on strike they mostly all returned to their work on Saturday owing to the poverty and privations which they were suffering. Great distress is observable on the Sheffield markets, and it is said that many of the employed have been obliged to throw up their work in the iron trade, and seek to earn their living on other sources, as the wages they are able to procure in working in the mills and forges is not sufficient to sustain themselves and their families. It is believed by many that the trade is at its lowest point, and manufacturers make out that prices cannot possibly get lower. Through a little speculation the demand for pigs is reported as being a trifle better, but finished irons are very dull, and the demand to a certain extent has fallen off through masters trying to advance on the present rates. Inactivity prevails over the trade at Newport, although masters are expecting more orders to be given out for railway iron than there has been for the last few weeks, but they fear that contracts for this kind of iron will never be again so numerous as they have been in past years.

Accoading to the returns for last month there were 12,354 tons of iron from Newport cleared, against 13,215 tons in the corresponding month of 1877. From Cardiff the clearances show an increase, being 6056 tons against 4709 tons, but from Swansea the figures only show 12 tons against 98 tons. Much inactivity is observable at the mills at Birmingham, there only being a few industries that are fairly employed; but even these establishments are reported as not turning out anything like the quantity of iron they are capable of doing. Depression, therefore, characterises all the mills, and is likely to do so until the heavy stocks become considerably reduced. Manufacturers appear to be suffering mostly from want of orders, the present low prices not appearing to be sufficient inducement to buyers to give out their orders. Prices for best Yorkshire iron at Leeds are said to have slightly fallen off, and consequently a little extra demand for this description has sprung up, though other kinds are reported as keeping very dull, and as to when any improvement is going to take place appears to be a question which many are asking, but no one can be found who is able to give a favourable and satisfactory answer. At Barrow-in-Furness the trade is said to be slightly healthier than it was a few months ago, and a fair quantity of pig-iron has been disposed of. The demand for Bessemer brands is reported as being much larger than it is for forge iron, the trade for the latter being of a very meagre character. Prices which have continued to rule the markets for some time past are stated as still being the current rates. Finished iron remains in a most depressed condition, and orders are very slow in coming in.

There is very little alteration to be reported from South Durham, makers of pig-iron continuing very firm in their quotations of 43s. for No. 1; No. 3, 39s. 6d.; and No. 4 forge, 38s. 6d. These are the general quotations, but in some few cases sellers have given way a trifle to meet buyers in their limits. No improvement is noticed in the manufactured branch, and few anticipate any change for the better taking place for the remainder of the year. Plates are quoted at 6*l.* 5s. per ton, but orders are very scarce. In other kinds much quietness is observable, no one apparently taking any interest in the welfare of the trade. The warrant market at Glasgow continued very dull last week, the lowest point touched being 49s. 3d.; but the week closed on Friday at 49s. 4½d. This week the market opened at 49s. 5d. to 49s. 4d. for prompt cash, but gradually declined to 49s. 3d., and thence to 49s., with our markets now closing at 48s. 6d.

SHIPMENTS.

For the week ending Aug. 18, 1877	Tons 12,096
For the week ending Aug. 17, 1878	6,162
Decrease	5,934
Total decrease for 1878	52,388
Imports of Middlesborough pig-iron into Grangemouth:—	
For the week ending Aug. 17, 1878	Tons 5,286
For the week ending Aug. 18, 1877	5,158
Increase	128
Total increase for 1878	7,598

TIN.—The market is without animation, and prices easy. The advices from America state that the market there keeps very quiet, the demand being light, and values are in buyers' favour. The price is 14⅜c. for Straits, Australian, 14¼c.

ZINC.—At public sale yesterday 160 tons of English sold from 20*l.* 10s. to 20*l.* 12s. 6d.

QUICKSILVER.—There has again been a good business doing at 7*l.*, and the demand has been general, indicating a better trade.

LEAD.—This metal has further receded 5s. to 7s. 6d. per ton. The market is very dull.

THE IRON TRADE.—(Griffiths's Weekly Report).—Friday evening. The Glasgow market is weak, and prices have a drooping tendency. G.M.B. warrants are quoted 48s. 6d. buyers at the close of the market this afternoon. This is a fall of 9d. since last week. We quote makers' No. 1 iron:—Gartsherrie, 57s.; Coltness, 60s.; Calder, 57s. 6d.; Langloan, 57s. 6d.; Summerlee, 54s. 6d.; Monkland, 50s. 6d., f.o.b., Glasgow; Glengarnock, 55s.; Eglinton, 50s., Androssan; Shotts, 57s. 6d., f.o.b., Leith. Our market for iron is without change. The general trade continues quiet. The orders given out are generally for the best iron of Yorkshire and Staffordshire make. The demand for nail rods is improving, prices are firm for this kind. Boiler plates very quiet. There are some extensive orders on the market for cast-iron pipes, and the demand for gas and locomotive tubes is tolerably active. There are also orders in the hands of the merchants here for roofing sheets for Russia and the Principalities. Charcoal tin-plates are in better demand. Coke-plates, however, continue flat, prices weaker, being 14s. in Liverpool for I. C. Welsh coke. This, to our thinking, leaves a certain and positive loss.

The works on the Tees are less busy in plates and bars. The Yorkshire houses, as a rule, have more orders for bars and specialities. In Shropshire the works are moderately off for orders for bars and sheets. Some good orders have recently been sent down to the Shropshire Iron Company, which will keep these works active for some time. Nettlefold's works, as usually, are in full activity. Snedshill have moderate orders for their famous plates, but we are sorry to say the wire rod trade at these works is depressed and rendered almost profitless by the fierce competition the Shropshire ironmasters have to contend with from the German ironmasters. The markets for the raw material are inactive. The Middlesborough market last Tuesday was a little indefinite, still there are good buyers on the market for all next year at slightly enhanced rates.

The smelters on the West Coast express dissatisfaction with the present condition of the trade. It appears that Bessemer iron leaves them no profit, and there is very serious talk along the coast of blowing out one or two groups of furnaces. The market at Birmingham was very quiet on Thursday, and best pig-iron of Shropshire and Staffordshire make moves off very slowly. In North Staffordshire there is more being done in the raw material, and the finished iron department in this district is more active than the south. Copper market weak—price drooping. Tin weak, and still receding. Spelter market unstable and weak; price, Silesian, 18*l.* Lead market not firm; no business. ——

Messrs. PIXLEY and ABELL—GOLD: The only arrival of gold this week has been 54,000*l.* per Hydaspes; this was taken for Spain—there has been no other export demand whatever. There have been no transactions in bar gold at the Bank of England since our last circular. The American took 20,000 sovereigns to the Cape. ——SILVER: The market has been entirely bare of any supply of importance, but some few transactions have taken place at 52¾d. to 52 7-16ths per oz. standard, this latter being to day's quotation. There is no demand whatever for the East, the sales effected being for the Continent. There were no shipments yesterday per Peninsular and Oriental steamer Mizzapore.——MEXICAN DOLLARS: There have been a few sales at our last week's quotation of 51¼d. per oz. The Peninsular and Oriental steamer Mirzapore, leaving Southampton this day, takes 21,484*l.* to Hong Kong, and 7790*l.* to Shanghai.

The MINING SHARE MARKET continues dull, and in the absence of many of the dealers business has been very restricted, and prices merely nominal.

TIN mines are again weaker, owing to a further drop of 2*l.* per ton in the standard for ore on Monday. The price has now reached 34*l.* per ton, and is said to be the lowest yet known in Cornwall. This action of the smelters on Monday was quite unexpected, and is supposed to have arisen quite as much from financial as commercial considerations. Dolcoath is quoted 24 to 26; Carn Brea, 31 to 33; Tincroft, 6¼ to 7¼. West Basset, 10s. to 15s.; at the meeting the accounts showed a profit on three months working of 3*l.* 10s., and a total balance against the mine of 16,487*l.* The ores sold during the quarter were—copper, 150*l.*; black tin, 160 tons, 5845*l.* A call of 1*l.* per share was made, payable by instalments, and this will bring down the debt to 10,000*l.*, and against which there are plant and tin stock on the mine. The agents state that during the past quarter two valuable pieces of tin ground have been laid open, one to the west of Grenville's at the 164, and the other, also to the west of Grenville's, at the 144, and they hope to pay the costs for the coming quarter, even at the present low price of tin. Levant accounts show a loss on four months of 441*l.*, and a debit balance of 1633*l.* A call of 6s. per share was made. North Levant made a call of 8s. per share; the accounts showed a loss on 16 weeks of 718*l.*, and a debit balance of 978*l.* The tin sold (24 tons) realised 804*l.* At Botallack meeting there was a loss of 33*l.* 6s shown on the quarter, and a debit balance of 2732*l.* 10s. 4d. The tin sold (119 tons) realised 3958*l.* The mine has improved, and even with the present price of tin the agents hope to do pretty well. Cook's Kitchen, ⅝ to ¾; East Pool, 9 to 10; Penstruthal, 3s. to 5s.; South Condurrow, 10½ to 11½; South Frances, 3¾ to 4¼; South Crofty, 4 to 6; Wheal Agar, 3¾ to 4¼; Wheal Grenville, 2¼ to 2⅝; Wheal Peevor, 6 to 6½; Wheal Russell, 2 to 3.

COPPER MINES are neglected. The standard for ore on Thursday declined 15s. per ton; the average price of the ore sold was 3*l.* 0s. 6d. Devon Great Consols, 2 to 2½; the month's sale here (803 tons) realised 1478*l.*, the greater part of the ore fetching under 1*l.* 10s. per ton. South Caradon, 60 to 70; the ore here (480 tons) realised 2306*l.* Glasgow Caradon sale (205 tons) brought 74*l.* This mine for the twelve months made a profit of 1161*l.*, with a balance of 2287*l.*, and a dividend of 2½ per cent. was paid, and 1391*l.* carried forward; but for the low price of copper the profit would have been at least 3000*l.* more. Wheal Crebor, ½ to ⅝; the ore sold on Thursday for 26*l.* 17s. 6d., which nearly meets the costs of two months.

North Treskerby appears to be looking better, the shaft is now down to the 24, and the lode will be cut through in a few days. The 12 west is looking well, and the 12 east is worth 1½ ton of copper ore per fathom. Parys Mountain, 7s. to 9s.; no change here. Morfa Du, ⅝ to ¾; the lode has been cut into 7 ft. wide, 6 ft. of which is almost solid bluestone. The mine ought, therefore, soon to make good returns. West Tolgus, 50 to 52½. Marke Valley, ⅝ to ¾; the sale of ore here, 326 tons, realised 125*l.* 8s. 8d. Hingston Down, ½ to ⅝; the ore, 83 tons, realised 147*l.* 6s. 6d. Bedford United sold 104 tons, for 30*l.* Mellanear, 3¾ to 4; West Seton, 8 to 10.

LEAD MINES, although chiefly dealt in, are very quiet, and our quotations for the most part are nominal. If shares are wanted it is difficult to get them at quotations; if they are forced on the market for sale sellers have to take whatever dealers chose to give. Roman Gravels, 7 to 8; the sale of lead (180 tons) realised 190*l.* 5s., and 25 tons of blende, 82*l.* 10s. Ladywell sold 25 tons of lead for 228*l.* 10s. Great Laxey, 18½ to 19½; Tankerville, 3½ to 4. Pateley Bridge, 4½ to 4¾; the Rake vein at the 30 is not quite so good, worth 8 tons of lead per fathom. At Pant-y-Mwyn the directors' report (dated Aug. 8) and statement of accounts to June 30 have

just been published, prior to the meeting to be held on the 29th. The lead ores sold to that date realised 2115*l.*; costs, 1342*l.* 1s. 2d.; dividend of 1s. paid in February, 518*l.* 2s.; balance, 255*l.*; credit being taken for lead "in stock." 1116*l.* 5s. A balance is brought down of 1376*l.* 7s. 10d., out of which a dividend of 2s. per share has been declared, leaving a balance to credit of profit and loss of 323*l.* 1s. 10d. From the statement of assets and liabilities it appears that 18,736*l.* has been expended on the mine; out of 30,000 shares of 2*l.* each 10,533 have been allotted, and upon this number the dividend is paid. In the accounts for the previous year 8794 shares only had been allotted, and in the present accounts there appears a charge for commisson on 2468 shares at 2*l.* each fully paid up, at 25 per cent. =1234*l.*, an extraordinary sum to pay for the issue of shares at par, this being in addition to 440*l.* commission on sale of shares at par charged in the previous accounts. The agent's report states that various changes have taken place in the working portion of the mine since the previous annual report, and which, in his opinion, have a decidedly favourable aspect towards the future success of the undertaking. East Van shares are weaker, at 4½ to 5; the cross-cut at the 70 fathom level has now been driven 25 ft., and has reached the hard part, and the point where the agents hoped to find the lode productive—it is intermixed with spots of lead. Rookhope, 15s. to 17s. 6d.; Leadhills, 2½ to 3; D'Eresby Mountain, 80 to 90. The Fuchaslas lode, at No. 1, is improving, and the stopes on the Gorse lode looking well, and concentrating into veins and ribs of lead. The agents hope to get the crusher to work in about a month, and there is a large quantity of leadstuff to dress and get to market. D'Eresby Consols, 10 to 11; the lodes are looking better, and show indications of lead. Aberllyn, 10 to 11; this mine has been specially inspected, and the agent, after referring to the different points in operation, concludes—"I consider the mine to be of the highest promise, and is likely in a short time to become a very profitable undertaking." Van, 18½ to 19½; the sale of lead for the month (400 tons) realised 4406*l.* 5s.; blende (150 tons), 442*l.* 10s. Glyn, 10s. to 15s.; West Chiverton, 6 to 7; Wye Valley, 1½ to 2; West Wye Valley, 2½ to 3. South Darren, 2⅞ to 2⅞; the mine continues to open out well. The lode in the 90, so far as cut into, 6 ft., is worth 35*l.* per fathom. The winze is the same level is worth 40*l.* No. 1 stope, 35*l.* No. 2 stope, 25*l.* Derwent, 2 to 2½; the 93 east, in Westgarth, continues to improve. The drill is doing good work.

FOREIGN MINES.—Blue Tent, 2¾ to 3; Cape Copper, 29 to 30; Chontales, 12s. to 14s.; Eberhardt and Aurora, 4 to 4½; Flagstaff, ½ to ⅝; New Zealand Kapanga, 1¼ to 1½. Santa Barbara, 25s. to 30s.; the advices show a profit for June of 430*l.* 12s. 3d. The gold returned—3421 oits.—is valued at 1453*l.* 18s. 6d.; costs, 1023*l.* 6s. 3d. The mine is looking better, and will probably go on increasing its profits. Frontino and Bolivia have advanced to 3, 3¼; Colorado United, 3⅝ to 3⅞; Last Chance, ¾ to 1; New Quebrada, 1¾ to 2; Panulcillo, ¾ to 1¼; Richmond, 8 to 8½; St. John del Rey, 275 to 285; Pitanqui, par to ¼ prem. Pestarena, 3-16ths to 5-16ths; the profit made by this company for the year ending September 30, 1877, was 2219*l.* 8s. 4d.

The Market for Mine Shares on the Stock Exchange has been scarcely so active this week, but there is still a fair amount of business doing in a few foreign mines. The favourable advices from Frontino and Bolivia have led to many transactions and an advance in price, the closing quotation being 2⅞ to 3¼. Richmond have slightly recovered now that it is known that the statement as to the mine being flooded was false. Cape Copper, Rio Tinto Coupon Bonds, Eberhardt and Aurora, and Plumas Eureka have all been dealt in to-day, and the close of the market shows a slight improvement. As to the general business prospects, there is certainly greater confidence; for, not only are new concerns being spoken of, but it is stated that the Par Lead Smelting Works have been purchased by capitalists interested in the Van Mine, and that it is intended to commence operations shortly. It is also reported that Great Wheal Alfred sett is to be worked by a London company, who will give special attention to the western part of the mine. The Cyprus Investment and Improvement Company, referred to last week, closes its subscription list on Saturday next for London, and on the Monday following for country applications for shares.

Amongst the new companies brought forward during the week is the Lower Van and Nantiago Mines, which has been formed with a capital of 30,000*l.*, in shares of 10*l.* each, to purchase and develope the Glangwden and Nantiago Mines. The Glangwden, or Lower Van, is half-a-mile east of the Van boundary, about 315 acres in extent, and traversed by the Van lode for the entire length of the sett, which exceeds one mile. The formation is of the same character as that of the Van Mine. It is a fact of considerable importance that large bodies of inflammable gas have been met with issuing from joints in the rock, and as gas of the same nature is found at the Van Mine in close proximity to large bodies of ore, it may reasonably be expected that as depth is attained at Glangwden equally large bodies of ore will be discovered. The mine has been carefully inspected by Capts. Walter Eddy, Jas. Nancarrow, and Frank Evans. In his last report of April 17, 1874, Capt. Evans says—"I note they (Messrs. Eddy and Nancarrow) report a quantity of gas in these workings, and it is a fact that the richest deposits of ore in Van contain the gas in large quantities." After describing the work alrerdy done, he adds—"I do not know of a property of equal prospective value to this in the whole district, and believe that by carrying out the operations so ably laid out you will have a good mine and a profitable one." The Nantiago sett is very extensive, and is traversed by two lodes in an east and west direction, and is equally promising. The management of the mines will be under the immediate personal supervision of Mr. Lefeaux, who has had 30 years' mining experience in the Van district, and who commenced at the Van Mine the deep adit which has led to such profitable results, the dividends paid amounting to upwards of 345,000*l.* since 1869.

The alarming telegram announced to have been received from the Richmond Mine last Friday, and upon which shares were seriously depressed, proves to have been unjustifiable, and the more so because being tinged with truth it was the more dangerous. There were floods on Friday, it is true, but the announcement that the mine was flooded could only have been made through lamentable ignorance or for share jobbing purposes, since the floods consisted of a rush of water from the mountains along the valley, whilst the mines are 2½ miles up the hill, and, consequently, far beyond the influence of the water. The furnaces were within the range of danger, but not in such a position as to be liable to any serious calamity; and, in truth, the damage to the furnaces must have been very trifling, since this week's telegram shows that such damage has already been repaired, and, what is still more conclusive, the returns show no diminution. It must be felt by all *bona fide* investors in Richmond shares that the interminable speculative jobbing which goes on in the market is highly detrimental to their best interests, and they should be very cautious not to allow foolish rumours to induce them to part with their shares at a loss. At the present time there is a great effort being made, no doubt with the object of buying shares at a low price, to create a panic as to the Richmond Company's tenure of the property, than which nothing can be safer. It is usual in carrying on mining or other commercial business in a foreign country for some individual to be entrusted with a power of attorney or similar instrument, placing such trustee (as between himself and the law courts of the country in which the property is situated) in the position of sole proprietor of the English company's property. An individual other than an English subject is frequently, if not usually, appointed to the trust; the instances are rare indeed in which the trust is abused, and local foreign courts invariably protect the real owners in case of any dispute with their trustee. The sole difference in the case of the Richmond Company, to state the matter in popular form, is that to meet more readily the requirements of the United States law a legally incorporated American Company has been entrusted with the power of attorney, or its equivalent; and there is no more fear of the English shareholders' rights being prejudiced by the course which has been taken in this respect, than there was a probability of their substantiating their claim to work out of bounds in the dispute with the Eureka Company. The value of the suggested Nevada Act, which would conflict with the United States Federal law, would be doubtful, even were it obtained; and every *bona fide* holder should be careful not to permt baseless fears to alarm him.

Cape Copper, 29½ to 30½; the advices show that the June returns were—From Ookiep 975 tons of 31 per cent., and from Spectakel and Nababeep together about 30 tons of about 30 per cent. On July 17 an average of 12s. 2d. per unit was realised for 500 tons of ore, or about 930*l.* for the parcel. There is no important change in sinking the new shaft at Ookiep. The trial mines are going on much as usual.

Yorke Peninsula, ¼ to ⅜; preference shares, ⅞ to 1⅛; the report prepared for presentation at the meeting on Tuesday is an exhaustive and satisfactory one. The directors state that the continued decline in the price of copper during the period now to be reported on has made the position of all mines producing that mineral very difficult to deal with. While the Kurilla Mine has continued to open up in a manner which has quite realised the expectations of the directors, it has not been able to do much more during the year 1877 than pay its way out of the proceeds of the ore that has been raised. It is satisfactory to know, however, that much of the work that has been done during the year has been directed to the important object of keeping the shafts and levels well ahead of immediate requirements, and to laying open reserves of ore to be taken out and realised as soon as there shall be a more favourable market for copper.

St. John del Rey, 275 to 285; the latest telegram from Morro Velho, dated Rio de Janeiro, Aug. 17, states that the produce for the first division (8 days) of August was 9000 oits., of the value of 3487*l.*, the ley of the ore being 6·1 oits. per ton, or 7·6 oits. per ton according to the old measurement. The duty of the stamps was low, owing to the short supply of water. Don Pedro North del Rey, ¼ to ⅜; a telegram states that the cross-cut has been commenced, and that all is going on well. Santa Barbara, 1 to 1¼; the manager (July 14) writes that 3521 oits. of gold, worth 1454*l.*, was obtained in June from 965 tons of ore and 66 tons of refuse sand. The ley of the ore averaged 3·545 oits. per ton. The estimated June profit was 430*l.* 12s. It appears that as a whole the lode operated on had been of a more productive natue, and showed an increase of 0·283 of an oitava of gold in the yield per ton as compared with the previous month. The output has been less than usual, owing chiefly to the short month of 24 working days, and a lower force of natives. The ironwork required for setting the pumping gear in action was completed, and the pumps would go regularly to work in a day or two, when everything was expected to be ready.

Richmond, 8 to 8½; the usual telegram from the mine at Eureka states that the week's run was $60,000, from 900 tons of ore. During the week the refinery produced doré bars to the value of $40,000. The manager writes (July 31) that No. 10 chamber below the 400 is looking very well, and turning out some very good ore. Work in the rise above the 900 has been resumed, and it is looking very favourable for ore. She present back is in iron ore, with streaks of carbonate ore. No. 6 chamber below Lizette tunnel is looking very well. A winze has been started in ore; it is now down 20 ft.—all the distance in very good ore. There is no change in any other part of the mine. The furnaces are in good working order, and smelting the usual quantity of ore.

The losses by the disastrous fire in Alta, Utah, are variously estimated at from $50,000 to $150,000, and are covered by very little insurance. Everything in the town is destroyed, and more than 40 families are not only without shelter, but without food and clothing, and there are no provisions left in the town. The whole mining camp was annihilated in 40 minutes, and the inhabitants fled to the mountains for safety. The fire is supposed to have been caused by a lighted cigar. Messrs. Walker Bros. silver mine in Butte, Montana, has resumed shipment of ore. The owners have put in a waster at a cost of $25,000, with which to prepare rebellious ores found below the water level for the battery. The mine is looking well, and returns of a high grade bullion may, it is thought, soon be expected, as it is under stood that a body of high grade ore carrying much gold has been struck. Owing to the prosperity of the Butte Camp it is contemplated to extend the line from Virginia City. The three lots of ore in 10 tons from the Salmon River Mines, sampled at the Coaklin Works, Salt Lake City, assayed in round figures $500, $900, and $1000 per ton respectively. It cost a very trifling sum to mine it, and $120 per ton freight to the city. If the Salmon River Mines are as rich as these results indicate, and are as extensive as their owners claim them to be, Salt Lake may reasonably hope for a good trade with that mining country.

Hultafall, 3½ to 4½; the latest accounts from the mines are of a highly satisfactory character. An improvement has taken place in the end driving east, where nearly equal quantities of lead and blende are being produced. Altogether the prospects of the mine are of a satisfactory character.

Lead Mine shares are entirely neglected, the quotations remain the same, but it is impossible to sell at them, whilst the fact that the price of lead continues to decline it is not calculated to increase the confidence of capitalists in this class of security. Van, 17½ to 19½; the mine is progressing satisfactorily, as usual, and looking remarkably well. Grogwinion, 2 to 3; the news from the mine this week is not of any importance. Wye Valley, 1½ to 2; the parcel of 30 tons of lead sold this week realised 9*l.* 5s. per ton. Accounts from the mine continue very satisfactory. West Wye Valley, 2 to 3; there having been rain the dressing of ore will now be rapidly pushed forward, and further parcels of ore got ready for market. St. Harmon, 2½ to 3½; these shares have been enquired for on the improvement in the prospects of the mine. Red Rock, 2 to 2½; 40 tons of lead will be sold to-day. The accounts are still good respecting the new discoveries. Caron, 2¼ to 2¾; Mawston, 55 to 60; Hartington Moor, 1½ to 2.

Mineral Corporation, 10 to 11; it is reported that everything is progressing satisfactorily. An account has been opened at the North and South Wales Bank. The Corporation's principal bankers are, of course, at Paris, and it is said that money will not be spared to make the enterprise a success. The introduction of foreign capital cannot but be advantageous to the district, and the Corporation is, therefore, entitled to every encouragement. In the course of a day or two Capt. Bennetts expects to have the water in fork to the bottom of the shaft, and as to the cross-cut from the deep adit, they expect to intertect the lode in about 4 fms. driving. Full confidence is felt that success will be achieved at Hafna, and there are many at present entirely unconnected with the Mineral Corporation who predict that the operations there will lead to all the mines in the district being more energetically, and, consequently, more profitably worked.

Pant-y-Mwyn shares are quoted 5 to 5⅛; a fresh run of ore has, it is reported, again been intersected, and the reserves are being rapidly increased. As the ore is very pure the expense of dressing it is trifling. It is said to be probable that the next dividend will be double that just declared. South Darren, 1⅞ to 2⅛; the full width of the lode in the 90 end has not yet been ascertained, but for the 6 ft. being carried it is worth 35*l.* per fathom. The winze in this level is worth 40*l.* per fathom, and the stopes are worth 35*l.* and 25*l.* respectively. Derwent, 2⅛ to 2⅜; the 93, east of Westgarth's, continues to improve.

Subjoined are the closing quotations:—

Assheton, ⅜ to 1¼; Devon Great Consols, 1 to 1½ prem.; East Caradon, ¼ to ⅜; East Van, 4½ to 5; Glyn, ½ to ¾; Great Laxey, 18 to 19; Hingston Down, ⅛ to ⅜; Leadhills, 2½ to 3; Marke Valley, ½ to ¾; Parys Mountain, ¾ to ½; Pateley Bridge, 4¼ to 4½; Penstruthal, ⅛ to ⅜; Roman Gravels, 7 to 8; Rookhope, ½ to 1; Tankerville, 3¼ to 3½; Tincroft, 6 to 8; Van, 18 to 20; West Assheton, ½ to 1; West Chiverton, 5 to 7; West Pateley, 2 to 2½; Wheal Grenville, 1¼ to 2½; Almada and Tirito, ⅛ to ⅜; Birdseye, Creek, ⅜ to ⅝; Blue Tent, 2¾ to 3; Cape Copper, 29½ to 30½; Cedar Creek, ⅛ to ⅜; Chontales, ⅜ to ⅝; Colorado United, 3⅝ to 3⅞; Don Pedro, ⅜ to ½; Eberhardt and Aurora, 4¼ to 4½; Exchequer, 1-16th to 3-16ths; Flagstaff, ⅜ to ⅝; Frontino and Bolivia, 2¾ to 3¼; Hultafall, 3½ to 4¼; Javali, ¼ to ½; New Zealand Kapanga, 1¼ to 1½; Last Chance, ¾ to 1; New Quebrada, 1¾ to 2; Oregon Pref., 4 to 4¼; Port Phillip, ⅜ to ⅝; Richmond Consolidated, 8 to 8⅛; St. John del Rey, 275 to 285; South Aurora, ½ to ¾; Tecoma, ⅛ to ¾; United Mexican, 3¼ to 3¾; Placerville, 2¾ to 3.

COLLIERIES.—Business in these shares is improving, and several good transactions have taken place at higher prices. The prospects of all good collieries have become decidedly better since business has begun to show signs of real revival, and if the reaction from low prices is not too rapid those collieries which have been able to stand against the depression of the past two or three years should now have a long course of prosperity before them. All the causes which have operated so disastrously against our own coal and iron trades have had equally, if not more, serious effects upon the producers of coal and iron in other countries; and notwithstanding all the "tall talk" of our American and Belgian competitors, we find, as we fully anticipated, that it is not they but extraneous influences which have interfered with our business, and that they themselves have not only suffered as much as we have, but are now beginning to have praetical experience of the fact that the country which has for so many years past held the key of the iron and coal markets can still retain all its really good customers. Our increasing foreign exports have been sufficient to show this without any further proof. The South Wales ports shipped to foreign parts during last month 510,664 tons, as against 463,722 tons for the corresponding month of last year. In fact, South Wales has been remarkably active in keeping clear of stocks by exporting; and now that the local trade is looking up we expect to see a more rapid revival in prices in South Wales than elsewhere. The local demand there for steam, gas, and house coals is already better than for some time past, and in some cases better prices have been secured.

The growth of the coal trade in South Wales is, however, more marked as regards anthracite coal, which is finding more enquirers than have ever before come forward. We understand that the Ynisedwyn Company continues to receive more calls for its coal than it can supply, and that the prices are such as to leave a profit of at least 2s. per ton. The growing demand for high class iron and steel will, too, give this company's iron and steel works an impetus which cannot fail to redound to the advantage of the shareholders. The Lancashire coal trade is somewhat dull, but prices average at old rates. The Chapel House Colliery is doing well, raising a very satisfactory output, and selling all the coal it can send to market. The new pit is now 490 yards deep, and may, therefore, cut the well know Arley seam very shortly. The new head gearing has been finished, and the large engine recently completed, which can raise over 1000 tons of coal per day so soon as the lower seams are thoroughly opened out, is working most satisfactorily. The sales of coal at the Alltami during June and July were in excess of those for the corresponding period of last year, and as trade is improving Alltami prospects appear bright; the shares close at 3¼ to 3¾. Profits are being made at Llay Hall both on coal and bricks; the shares are, however, unchanged at 6 to 8. Chapel House shares are firm at 3 to 3½; Preference ditto, 5 to 5¼; Cardiff and Swansea, 1 to 1¼; New Sharlston, 3 to 4; Newport Abercarn, 4 to 4¼; Thorp's Gawber, 2¼ to 2¾.

At the Truro Ticketing, on Thursday, 2409 tons of copper ore were sold, realising 7312*l.* 2s. 0d. The particulars of the sale were—Average standard, 91*l.*; average produce, 6⅝; average price per ton, 3*l.* 0s. 6d.; quantity of fine copper, 153 tons 3 cwts. The following are the particulars:—

Date.	Tons.	Standard.	Produce.	Per ton.	Per unit.	Ore copper.
July 18.	2095	£ 90 7 0	6⅞	£3 9 0	10s. 1d.	£50 7 0
Aug. 1.	1719	83 6 0	8⅜	4 3 6	10 0½	50 5 0
„ 22.	2409	91 0 0	6⅝	3 0 6	9 6½	47 14 0

Compared with the last sale, the decline has been in the standard 15s., and in the price per ton of ore about 1s.

The Mersey Steel and Iron Company report shows a loss on the year's operations of 12,163*l.* In consequence of the unremunerative prices ruling for steel rails, the directors have discontinued that branch of the manufacture for the present.

The Langham Hotel Company half-yearly accounts to June 30 show that the receipts were 44,440*l.*, and the net profits 8853*l.*, 1641*l.* having been made in the first and 7212*l.* in the second quarter. With this sum brought forward the available balance was raised to 10,134*l.*, from which a dividend at the rate of 20 per cent. will take 8609*l.* The sum of 1500*l.* which the directors at an extraordinary meeting held in July proposed should be specially set aside makes, with the addition of the surplus of the half-year's working, an unappropriated balance of 3025*l.*

The Hughes's Locomotive and Tramway Engine Works Company half-yearly report recommmends a further dividend of 7s. per share, making, with the interim payment, 12s. for the fifteen months to June 30.

The Metropolitan Railway Carriage and Wagon Company annual report shows a profit on the past year's transactions of 17,729*l.* 17s. 8½d., and a dividend of 10 per cent. was declared. Messrs. C. L. Browning and H. Heaton were re-elected directors.

The creditors of the Northern Bohemian Collieries Company are to send in their claims by the 19th prox, and those of the Bowers Allerton Collieries (Limited) by the 30th prox.

*** With this week's Journal a SUPPLEMENTAL SHEET is given, which contains—Original Correspondence: Separation of Sulphur from its Ores; Treatment of Copper and Silver Ores; Richmond Mining Company (R. M. Brereton); Richmond Consolidated Mining Company (J. Bayliss), the Port Phillip Gold Mining Company; the Mineral Resources of British Columbia (R. B. Harper); British Enterprise in Sweden—Hultafall Mines (G. Batters); British Enterprise in Cyprus; Recent Origin of Mineral Lodes and Deposits of Metallic Minerals (W. Tregay); Rock-Boring Machinery—Schram's Drill (R. Schram); Schram's Claims (J. Knowelden); Raising Water from Mines; Pateley Bridge Mines; Mining in North Wales (J. A. Ede); the English Lead Trade (J. Owen); Great Western Colliery Company (W. Jones); the Iron Ores of Cornwall and Devon; Old Treburgett Silver and Lead Mine; Mining as an Investment for Capital (J. L. M. Fraser); Mining in Cardiganshire—Tyn-y-Fron (A. Francis); Pandora Mine (J. H. Crofts); Miners' Waste of Time—The Mines of Parys Mountain—the Scotch Mining Share Market—Registration of New Companies—Almada and Tirito Consolidated—Foreign Mines—Patent Matters, &c.

ZINC ORES.

ARMAND FALLIZE,
INGENIEUR-CIVIL, A LIEGE (BELGIUM),
BUYER
1.—CARBONATED AND OXYDED ZINC ORES (CALAMINE, &c.)
2.—ZINC AND LEAD ORES MIXED TOGETHER, BUT DRESSABLE KINDS ONLY.

CAPPER PASS AND SON, BRISTOL
PURCHASERS OF
LEAD ASHES, LEAD SLAGS, SULPHATE OF LEAD, HARD LEAD, BRASS SLAGS AND ASHES, COPPER REGULUS, MATTE, SCORIA, TIN ASHES, TERNE ASHES, &c., AND MIXED ORES or REFUSE, containing LEAD, COPPER, TIN, or ANTIMONY.

WALTER ROY AND ALLAN,
184, BUCHANAN STREET, GLASGOW,
EXECUTE COMMISSIONS FOR THE PURCHASE AND SALE OF SCOTCH PIG-IRON WARRANTS.
Sole Agents in Scotland for—
SPEAR AND JACKSON, Etna Steel Works, Sheffield; and JOHN SHAW, Yorkshire Wire Rope Works, Sheffield.
Steel and Steel Tools, Pig and Manufactured Iron, Hemp and Wire Ropes all purposes, Indiarubber Goods, and Furnishings of every description for lieries, Founders, Engineers, Saw-millers, &c.

HENRY WIGGIN AND CO.
(LATE EVANS AND ASKIN),
NICKEL AND COBALT REFINERS
BIRMINGHAM.

ASBESTOS.

THE BEST MATERIAL for the STEAM JOINTS of LOCOMOTIVES, MARINE and STATIONARY ENGINES BOILERS, &c.

It is manufactured entirely pure, and of the best and strongest qualities, into MILLBOARD, for STEAM, WATER, GAS, and ACID JOINTS,

Further particulars and prices of the undersigned,

SMITH, FLEMING, AND CO.,
17 AND 18, LEADENHALL STREET,
LONDON, E.C.

LEAD ORES.

Date.	Mines.	Tons.	Price per ton.	Purchasers.
Aug. 17	—Wye Valley	15	£ 9 5 0	George Burr.
—	ditto	15	9 5 0	Sheldon, Bush, and Co.
22	—Van	75	10 16 6	Walker, Parker, and Co.
—	ditto	50	11 1 6	Adam Eyton.
—	ditto	100	11 5 0	Sheldon, Bush, and Co.
—	ditto	100	10 18 6	Weston, Son, and Co.
—	ditto	25	10 16 6	ditto
—	ditto	50	10 19 0	St. Helen's Smelt. Co.
—	Roman Gravels	30	10 13 6	Adam Eyton.
—	ditto	50	10 12 6	George Burr.
—	ditto	50	10 11 6	ditto
—	ditto	50	10 10 0	ditto
—	Ladywell	25	9 3 0	Nevill, Druce, and Co.

BLENDE.

Date.	Mines.	Tons.	Price per ton.	Purchasers.
Aug. 22	—Van	75	£ 2 19 0	Vivian and Sons.
—	ditto	37½	2 19 0	Dillwyn and Co.
—	ditto	37½	2 19 0	Kenrick and Son.
—	Roman Gravels	12½	3 6 0	Dillwyn and Co.
—	ditto	12½	3 6 0	Kenrick and Son.
—	Pandora	80	1 12 6	ditto

COPPER ORES.

Sampled Aug. 7, and sold at the Royal Hotel, Truro, Aug. 22.

Mines.	Tons.	Price.	Mines.	Tons.	Price.
Devon Great Consols	82	£1 6 6	Marke Valley	70	£3 3 6
ditto	81	1 6 6	ditto	55	5 2 6
ditto	80	1 6 6	ditto	52	3 16 0
ditto	78	1 8 6	ditto	44	3 19 0
ditto	76	1 6 0	ditto	30	5 11 6
ditto	70	1 6 6	Glasgow Caradon	73	3 16 0
ditto	59	1 6 6	ditto	72	3 17 0
ditto	52	1 4 0	ditto	60	3 4 0
ditto	50	1 6 0	Gawton	71	1 9 6
ditto	47	1 6 6	ditto	42	1 10 6
ditto	45	5 3 6	ditto	32	2 1 0
ditto	43	4 14 0	ditto	15	4 10 0
ditto	40	3 15 6	Wheal Crebor	60	2 12 0
South Caradon	97	3 8 6	ditto	45	2 6 6
ditto	96	3 8 6	Bedford United	104	2 18 6
ditto	62	4 0 0	Phœnix	50	3 5 0
ditto	60	4 8 6	ditto	45	6 13 6
ditto	58	3 17 6	Hingston Down	83	1 15 6
ditto	54	8 8 6	Dingle's Ore	24	0 8 0
ditto	53	8 10 6	Wheal Russell	22	1 2 0
Marke Valley	75	2 17 6	Wellington's Ore	2	5 18 6

TOTAL PRODUCE.

Devon Great Con.	803	£1478 10 0	Bedford United	104	£ 304 4 0
South Caradon	480	2306 1 0	Phœnix	95	462 17 0
Marke Valley	326	1258 8 0	Hingston Down	83	147 6 6
Glasgow Caradon	205	746 12 0	Dingle's Ore	24	9 12 0
Gawton	180	301 17 6	Wheal Russell	22	24 4 0
Wheal Crebor	165	260 12 6	Wellington's Ore	2	11 17 0

Average standard ..... £ 91 0 0 | Average produce 6¾
Average price per ton £3 0 6
Quantity of ore ..... 2409 | Quantity of fine copper 153 tons 3 cwts.
Amount of money £7312 2 0
LAST SALE.—Average standard ..... £ 83 6 0 | Average produce 8¾
Standard of corresponding sale last month, £ 90 7 0—Produce, 6⅞

COMPANIES BY WHOM THE ORES WERE PURCHASED.

Names.	Tons.	Amount.
Vivian and Sons	572½	£1759 5 3
Grenfell and Sons	248	914 2 0
Nevill, Druce, and Co.	532	1417 10 6
Williams, Foster, and Co.	636	2115 0 0
Mason and Elkington	357	826 13 6
Charles Lambert and Co.	63½	279 10 9
Total	2409	£7312 2 0

NO SALE on Thursday next, Aug. 29.

Copper ores for sale on Thursday week, at Tabbs Hotel, Redruth.—Mines and parcels.—Mellanear 560—East Pool 323—West Tolgus 290—West Seton 130—Carn Brea 39—South Roskear 13—Killifreth 10—Poldice 6—William's Precipitate 2—Trumpet Consols 1.—Total, 1374 tons.

Notices to Correspondents.

*** Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be *filed* on receipt; it then forms an accumulating useful work of reference.

Bricks and Brick-making.—Being interested in the manufacture of plain and fancy bricks and tiles, I should be glad if some correspondent would refer me to any works giving statistical or commercial information connected with the subject?—G. V.: *Aug.* 19.

Received,—"W. P." (Doncaster) had better write to the office of the Ladywell Company, and the secretary will inform him what he had better do in the matter. The sharebroker through whom he purchased the shares has left London—"Salop": Your view is a pretty accurate one; but we did not think the publication of the letter desirable—"R. B. H."—"Shareholder" (West Jewell)—"Constant Reader" (Leeds)—"Reader" (Pandora) had better write to the office for the information he requires—"U. C."—"Old Subscriber" (Dublin)—Mr. W. Tregay's letter on Australia as a Field for Mining Emigrants shall appear next week—"Shareholder" (Glasgow Caradon).

THE MINING JOURNAL,

Railway and Commercial Gazette.

LONDON, AUGUST 24, 1878.

THE MINERAL RESOURCES OF IRELAND.

There is something inexplicable in the fact that the known mineral wealth of Ireland has not had that attention paid to it which it really deserves, or has attracted even a moderate amount of capital for its partial development. There are a few mines being worked that pay well, and we certainly cannot see any impediment that exists to the successful and profitable working of the hidden treasures that are to be found in the four provinces, the actual extent of which is not defined. Capital is sent into distant countries for the working of mines that never returns again, whilst our native resources that would pay are neglected, and the reason for this is anything but plain. At one time the law with respect to the tenure of land and the granting of leases was a bar to all improvements, as well as to the opening out of mineralised ground, and so paralysed the most important of the industrial resources of the country. The leasing power with respect to mines was so restrained as to stop all development in that direction. But the law that has worked so much harm, owing to the efforts of those interested in mines and some others, has been changed, and the restrictions removed, so that there does not appear to be any bar to the development of the mineral wealth of Ireland, or ground why that country should not be far more prosperous than what it is. It has all the essentials required for economically and profitably working the minerals that are met with in so many places, and these include copper, lead, barytes, ironstone, pyrites, manganese, gold, coal, rock-salt, &c., with an area of no less than two and a half million acres of valuable peat.

In several parts of Ireland there are beds of good coal, but they are worked to a very moderate extent, little attention having been paid to them, for whilst the collieries in 1855 yielded 144,620 tons, in 1877 they only produced 140,181 tons. This certainly does not say much for the enterprise of the coal consumer of Ireland, or of the capitalists of that country. The Leinster field is the most important, but last year it was only credited with 88,095 tons. This is very far below what it should be, and shows that but a small quantity of native coal is used by the inhabitants. At Castlecomer there are several good seams, one of them being 5 ft. in thickness, and two others each 3 ft. In Tyrone there is a considerable area of bituminous coal within a comparatively short distance of the most important manufacturing districts of Ireland. It is situate to the north of the town of Dungannon, close to the Ulster Canal, which connects the locality with Lough Neagh. Yet the manufacturers, who are large consumers of coal, do not patronise that which they have quite close to them, and in every way suitable for the raising of steam, for last year all that was raised was 15,398 tons. This does not speak well for the Irish consumers, seeing that Belfast alone imports from England and Scotland 800,000 tons of coal annually, and Londonderry nearly 100,000 tons. Very little coal is worked in Connaught, the field being limited in extent, but the quality appears to be good, judging by analysis of volatile matter, 28·10 per cent.; pure coke, 66·15 per cent.; and ashes, 10·75 per cent. In other parts of Ireland there are seams of coal, but they are not worked to any extent, from the apathy evidently of the owner, and the want of spirit on the part of those who have capital. In noticing the Tyrone coal field Mr. Hull says, "except in two or three cases coal mining has been carried on in a very rude and unsystematic manner in this district, which ought to be the great coal store for the North of Ireland." Yet there should be no difficulty in raising 20 times more coal than is now produced in Ireland, and with current low prices at a very fair profit. The estimated resources of the entire Irish coal field have been put down at 205,652,000 tons, so that at the present rate of working it would take 1400 years at least before the whole was exhausted.

Ireland is particularly rich in ironstone, and in the county of Antrim, along the coast from Carrickfergus to Cushendall, and for several miles inland, brown hematite is extensively worked as well as pisolitic aluminous, which is sent to Scotland. In Leitrim we have the clay ironstones occurring amongst the shales of the coal measures, but more especially amongst those of the Yoredale beds, noted for their richness in iron as well as for their extent. Their average composition is as follows:—

Peroxide of iron	51·36	per cent.
Lime	1·59	„
Magnesia	1 92	„
Alumina	0·98	„
Insoluble clay	12 82	„
Carbonic acid	31·33	„ = 100·00.

Proportion of metallic iron, 40 per cent.

Ireland at one time could boast of ironworks, and their ores were at one time smelted at the Arigna Ironworks on the shores of Lough Allen, and may be again, if spirit and enterprise are ever directed to the wealth of Ireland so far as regards her minerals. In 1855 the quantity of iron ore raised in Ireland was 576 tons, and last year it was 176,550 tons; but a much larger tonnage could easily be raised, so extensive are the supplies.

Copper is raised in the county of Wicklow, so celebrated for its scenery, near the Vale of Ovoca, and at Glendalough, as well as near Cork, Waterford, and Armagh. Last year, however, only 5218 tons were produced, against 15,625 tons in 1875. This is a serious falling off, but is certainly not the result of exhaustion. Pyrites, which realise about 1*l.* per ton, are found in greater abundance than in either England or Wales, and last year there was raised in the former 16,463 tons, all coming from Wicklow. But, large as may appear to be the quantity, yet in 1872 we find that the output was 42,950 tons. Wicklow has been noted for its lead as well as its copper ore, and some has also been obtained in Tipperary and Cork, the entire production last year having been 962 tons, giving little more than 1 oz. of silver to the ton of ore. In connection with the raising of lead, 110 tons of zinc were obtained. Barytes is found in lead and other mines, and Ireland has produced more than its share. The total raised in the three kingdoms in 1877 was 19,161 tons, of which Ireland was credited with 7285 tons. During the same year there was also raised in Ireland 50 tons of manganese. Of gold but little is obtained in any part of the three kingdoms, the only places that returns have been received from being Merionethshire and Ireland, the latter being credited with 4 ozs 1 dwt. 5 grs. of the metal, and 1 cwt. 3 qrs. 5 lbs. of gold ore. It will be seen that Ireland has almost every metal obtained in all parts of the United Kingdom, and must be a fine field for investigation, as well as for investing, seeing that labour is plentiful and cheap, whilst we believe the royalties are also low.

In addition, however, to the metal and coal which are worked and found in Ireland, there are deposits that are valuable and capable of being worked to a profit. There is plenty of limestone, and in connection with it, at least in Armagh, there are beds of very fine marble, and there is also the well-known Lambay porphyry, a beautiful ornamental stone resembling the green porphyry of Sparta and Merathum, but quite distinct from them in its mineralogical composition. Slate, too, is plentiful, for last year there was raised 5234 tons. Then there are ochre and amber, and plenty of rock salt, of which 28,525 tons were obtained last year.

With such valuable deposits as we have enumerated, we think that few persons will question the importance of Ireland as a field for investment, and it is certainly rather surprising to find that the owners of the minerals do not take measures for their development, or encourage others who have capital to do so. Were that done, many parts of Ireland that are now encumbered with a population steeped in poverty might be made centres of comparative wealth, with well to do and well employed communities.

FIRE-DAMP IN COAL MINES.

The frequency of accidents of a fatal character in our coal mines from fire-damp has for many years past brought quite a crop of inventions from well-intentioned persons for indicating the presence of the gas, as well as for doing away with it altogether. These sympathetic and philanthropic individuals evidently know little or nothing of collieries, otherwise they would not be at the trouble they have been in devising instruments that when practically tested are found to be utterly useless, and only excite the derision of those engaged in mining operations. A few years since Mr. Ansell invented an instrument for indicating the presence of gas, which it really did, but it was found that its adoption was out of the question. Other persons have followed in the same direction, and with similar results, as might be expected when the inventors are mere theorists, and cannot have any acquaintance with the mode in which coal is worked or the necessary ventilation is produced. The latest addition to the number of inventions for ensuring the safety of all persons engaged in the underground workings of coal mines was announced at the meeting of the British Association in Dublin. In the mathematical and physical science section Professor G. Forbes read a paper descriptive of an instrument for indicating and determining fire-damp in mines. The instrument consists of a resonator of variable dimensions, and a tuning fork of definite pitch. The resonator is a metal tube 1 in. in diameter and 14 in. long, in which a a piston slides so as to regulate the length of the tube. This tube is fixed to a block of wood, to which is attached a tuning fork whose points are just above the open end of the tube. The tuning fork is sounded in a very convenient way, and the piston is moved until the proper length is found, which is indicated by the resonator intensifying the sound of the tuning fork. Barometric pressure produces no difference in the instrument. The temperature correction is made by reading off a thermometer of the proper dimensions instead of reading off a fixed scale marked on the piston. The only error is by the presence of dense carbonic acid gas, but carbonic acid gas tends to destroy the explosive character of fire-damp, and it appears that if the pressure of carbonic acid gas prevented the instrument from indicating fire-damp it would certainly be sufficient to prevent the explosive character of fire-damp.

Such is a brief description of another instrument invented for the prevention of loss of life in collieries. Practical mining engineers, and even miners, will only smile at the attempt made, doubtless from the most praiseworthy motives, to indicate and determine fire-damp. At the present time the ordinary fire-trier who goes round the working places in a mine with a safety-lamp easily ascertains where there is the presence of gas, and takes means for clearing it away. But if practical men are not likely to go into raptures over Prof. Forbes's invention, that is evidently no reason why learned non-practical men should express a most favourable opinion with regard to it. Prof. Perry, we are told, believed that if the instrument were adopted by the coalowners, who were very slow to adopt measures of precaution, there would be a saving of life to the extent of 75 or 80 per cent. of those who lost their lives in mines. Prof. Perry is quite welcome to his opinion, but we certainly do not attach any value to it so far as it relates to the working of mines and the gas which is found in them. A great deal of importance is attached to the barometer in connection with collieries by many persons who are not connected with mining operations, yet some of the ablest engineers who have the management of coal mines say it is of very little use, for it often happens that the pressure in a mine precedes the fall of the barometer. Dr. Thomson took a rather similar view; that in the Bristol district, with which he was familiar, he had looked to the state of the barometer there when explosions had occurred in England and Scotland during the last two years, and he found that the explosions occurred, not when the barometer was low, but when a sudden depression crossing over from the Atlantic took place. He, therefore, did not see that Prof. Forbes's instrument would help coal miners much. The best preventive of accidents in coal mines is what we have over and over again repeated in common with practical men—plenty of fresh air, producing ventilation sufficient to neutralise the light gas that will at times accumulate in collieries. That is far better than any instrument, however sensitive it may be, for preventing explosions, and no instrument that has been invented, or is likely to be, will be as effectual.

OUR GREAT RAILWAYS.

The trunk railways of the North of England have evidently had some difficulty in maintaining their ordinary stock dividends for the first half of 1878. In scarcely any case has there been an advance, while in some instances there has been a positive declension. Thus the dividend on North-Eastern Consols has slipped back to 6 per cent. per annum, and that on the ordinary stock of the Lancashire and Yorkshire to 4¾ per cent. per annum. The Midland maintains its ordinary stock distribution at 5 per cent. per annum, the Great Northern at 4 per cent. per annum, and the London and North-Western at 6 per cent. per annum. But it is clear enough that these dividends have been earned rather painfully and with considerable effort. The times are dull, and the trunk railway systems of the empire naturally and immediately feel the effects of this dulness. The difficulty which appears to confront such companies as the North-Eastern, the Lancashire and Yorkshire, the Midland, the Great Northern, and the London and North-Western is the constant tendency to increase which is exhibited by their capital accounts. Year after year more and more millions are being embarked in our great railways, which are continually growing larger and more costly. The growth of capital accounts is not of much importance when times go relatively well with the country, but it is obviously a very serious affair indeed when traffic is stagnant, or even retrogrades.

The accounts of such a concern as the London and North-Western have acquired quite a bewildering magnitude. The outlay made on capital account to the close of June, 1878, had been carried to the enormous aggregate of 72,502,511*l.*; and at the same date a further capital expenditure was in contemplation to the amount of 7,816,656*l.* The London and North-Western will thus soon be an 80,000,000*l.* affair. Not only does the London and North-Western contemplate a considereble capital expenditure upon new works properly so called, but the existing lines are also involving a large further outlay for additional station accommodation, additional engine sheds, additional cottages, additional almost everything. The traffic has outstripped all calculation; and, ample as the appliances provided for its accommodation were supposed to be, they have fallen far short of the actual requirements of the case. The signalling of the present day is far more complete, and by consequence far more costly, than that in vogue 20 years since. Then the London and North-Western is embarking in a very heavy outlay for widening the line at many points. Between Longsight and Ardwick it is proposed to lay down no fewer than six lines of rails, and the Lime-street station tunnel at Liverpool has been opened out and converted into an open cutting for four lines of rails. Widening operations are also in progress between Bletchley and Roade, between Northampton and Market Harborough, between Manchester and Liverpool (that is between Barton Moss and Cross Lane, near Manchester, on the old Manchester and Liverpool line, which first demonstrated the value and power of locomotive railways), between Euxton and Preston, &c. All these works must involve the consumption of a certain quantity of additional rails, irrespective of the rails required for extensions properly so called. Of these extensions the London and North-Western has no fewer than twelve at present on hand, and the outlay proposed to be made upon them in the current half-year is 500,000*l.* It is tolerably clear that for some time to come the leading home railway companies will be large consumers of rails and other iron.

MIDLAND INSTITUTION OF MINING, MECHANICAL, AND CIVIL ENGINEERS.

The usual meeting of members was held at the Yorkshire College of Science, Leeds, on Aug. 14, when, owing to the absence through illness of the new President, the chair was taken by the past President,—Mr. T. W. Embleton.

A paper was read by Mr. Charles Walker, On Blasting, Sinking Pits by Electricity, and an Improved Method of Placing the Shot Holes. The paper described the method employed in considerable detail, and as it embodied some of the results of Mr. Walker's actual experience, and contained a great deal of very useful information for sinkers, it was a valuable contribution to the Transactions of the Institution. Mr. Walker mentioned that on one occasion, in hard ground, 21½ yards had been sunk in seven days, the shaft being 15 feet in diameter.

Mr. Walker answered numerous questions; and in the brief discussion that followed, Mr. T. W. Embleton, Mr. Arnold Lupton, Mr. Charles Houpton, and others, took part. It was unanimously resolved to print the paper, and a vote of thanks was passed to the writer. The discussion was then adjourned, thanks being passed to Mr. Embleton for taking the chair.

Bristol Mining School.—A Royal Scholarship has been awarded to Mr. Alfred G. Page, a student in this school, by the Department of Science and Art, upon the results of their examinations in May last. This scholarship secures for Mr. Page free education for three years, and a maintenance allowance of 50*l.* per annum during that time.

Royal Rhenish-Westphalian Polytechnic School, Aix-la-Chapelle.—The ninth annual session of this school, to which reference has frequently been made in the *Mining Journal*, will open in October, and the programme just issued shows that the school is making satisfactory progress, and that even increased facilities are offered for the acquisition of sound technical education upon very reasonable terms. Special courses are arranged for architects, civil and mechanical engineers, surveyors, chemists, and smelters, so that to whatever branch of industry the student may intend to devote himself the curriculum of the school will meet his requirements, whilst there are distinct courses for Gewerbeschullehrer for building, land surveying, levelling, natural philosophy, and chemical technology, so that all classes are well cared for. At the close of the last session, 1877-78, the number of students attending the school had reached the very satisfactory figure of 319, but there is no increase in the attendance of Englishmen—there is still one only, though it may be hoped that hereafter the many advantages of the school will be more fully recognised in this country.

Water from the Lower Greensand.—The lower greensand has been penetrated at Her Majesty's Dockyard at Chatham, by a boring conducted by Messrs. Docwra and Son. The stratum was reached at 903 ft. from the surface, and the water has risen so high as to overflow the top of the well. A year ago the boring had been carried down to a considerable depth in the chalk, when the character of the water was unsatisfactory, being brackish. The authorities at the Admiralty then consulted Professor Ramsay, the director general of the Geological Survey, as to the probability of reaching the lower greensand if on attempt were made to penetrate the gault. The opinion given was in favour of the effort, the dip of the lower greenstone in the Maidstone area being in the direction of Chatham. Prof. Ramsay was also of opinion that the quantity of water to be thus obtained would be considerable. In accordance with this advice the boring was continued, and the anticipations expressed appear to have been fully verified, helping to throw further light on the geological aspect of the water supply in the South-East of England and the vicinity of the Metropolis. Some years ago Messrs. Docwra and Son tapped the lower greensand at Caterham, but as the boring was very small it became choked with sand. The lower greensand has also been found, somewhat recently, at Loughton, in the district of Epping Forest, about four miles south-east of Waltham, an ample supply of water being obtained from this stratum at a depth of 1092 feet.

Gold in Siberia.—The Russian newspapers state that good results were obtained last year in the gold diggings near the sources of the Rivers Amovi and Sei. There are at the present above 3000 persons engaged in those diggings, and the yield obtained in 1877 amounts to 173 lbs., representing a value of 2,075,149 roubles. There are other gold diggings besides in Siberia, belonging to private proprietors, some of which are very remunerative. One of these has yielded in the past year an output worth no less than 3,500,000 roubles.

Gold in Victoria.—A nugget has been found by a Chinaman near Bealiba weighing 400 ozs.: 300 lbs. troy weight of stone from the Oriental claim at Stawell has yielded 343 ozs. of gold, equal to 2561 ozs. to the ton. The stone was taken from the 1160 ft. level.

Improved Steel Making Apparatus.—Some further improvements upon the patents of Messrs. Smyth and Simpson on November, 1874, and of himself of May, 1877, have been invented by Mr. S. R. Smyth, of Manchester. These relate to the construction of the metal receiver by substituting for the domed top a hood of iron lined with refractory material, which is bolted or otherwise fastened to the receiver, and is furnished with a blow-off outlet with relief valve. With reference to the chambers employed to receive and distribute the chemical agents he alters their position from the side of the receiver to a position nearer to the domed top, as close to the hood as the chamber can be practically placed, and make the necessary alterations in the position and the deflection of the channels constructed through the refractory lining. Chambers of a semi-circular or semi-oval form may be in some instances usefully substituted for chambers of the rectangular form. These chambers may in construction be continued round the receiver so as to form a belt from front to front thereof, with channels at intervals throughout the entire length for conveying and distributing the chemical agents introduced into the molten metal. These openings may be a series of small orifices made through the refractory material, the size of which will be determined by the quantity of air and chemical agents necessary to be admitted and the amount of pressure. He sometimes employs as a substitute for the channels a continuous opening through the refractory material, co-extensive with the chambers, so as to introduce the blast and agents in a sheet of given thickness instead of in columnar sections. The angle of these openings may be made to suit the pressure of the blast desired to be applied. He furnishes the improved metal receiver with an additional number of slagging holes, so that the slag may be removed at any period of the treatment of the metal, and also employs instead of an oblong receiver a receiver in a cylindrical form, with a domed or with a hooded top, and with chambers formed as above described.

Mining Improvements.—Every preparation has now been made for the putting in of the first skip-road in Dolcoath Mine, at the depth of 326 fms. under the adit; and probably the most novel road in the district. The runners consist of 6 in. square pitch-pine rods, which are to be fixed on sleepers, instead of dividing boards. The skip is to carry 30 cwt., instead of 18 cwt.—the present weight drawn by kibbles—which are intended to work without any guides underneath the skip, the same to run on wheels on the underlie, and which are to be kept in their proper track in the downright by

means of a double runner. It is calculated that this important step is highly essential for expeditious drawing.

REPORT FROM CORNWALL.

Aug. 22.—Although a few faint puffs of the rising wind of improving business have reached Cornwall they have not as yet been of a character to yield any real improvement. They do give a little encouragement for the future, and that is about all. Still it must be admitted that but for them matters might even have been worse. There were very grave fears last week that a somewhat serious fall in the tin market was imminent, and indeed some of the best authorities in the county said that such a fall was certain. Partly at least this arose from the large quantities of tin sent into the market on Saturday from Wheal Peevor, Carn Brea, Tincroft, Kitty, South Frances, and Pedn-an-drea, so large indeed that the smelters declined to give a price until they met on Monday.

The question as to the employment of boring machinery seems to be taking a somewhat new departure. Now that the Barrow borer has proved that it can drive three times as fast as ordinary hand labour at a considerably less cost, and give the men far better wages, and that the Beaumont borer has shown that a mine may be developed as rapidly as desired at much about the present outlay, the question of the adaptability of machine borers is settled. We are up to the present moment, however, without the materials for a proper comparison of the comparative economy of these two machines, although they have been asked for again and again, and this of itself has materially operated to hinder the development of mechanical boring. But apart from this the point now being discussed in many quarters is the economy of boring by machinery in small lodes. Men can follow up a small lode without doing mere dead work in removing the unproductive country than is absolutely necessary. Boring machines, it is commonly understood, require a considerable headway to operate, and there is a wide-spread belief, therefore, that their abilities are directly limited by the size of the lodes. This may or may not be so under present conditions, and it is a point that deserves the attention of the promoters of mechanical boring. It is not, however, a difficulty, in our view, that need or should continue. There must be means of applying mechanical boring economically in small spaces if a proper system is introduced, and sooner or later this improvement will be effected. Meanwhile the tide is running strongly in the direction of getting more work out of the men by abolishing all idle time as much as possible, and by paying more freely for results, inducing the men to earn as much as they can at a fair price, on the principle of Mr. Brassey that the best paid labour is after all the cheapest. We seem to be on the verge of important changes in what we may call the social side of Cornish mining, as well as on the mechanical.

There are days in which we are very glad to be able to report any change for the better, and while mining continues depressed, and clay working unprofitably active, it is satisfactory to know that in some of our quarries at least there is activity. It has not yet been publicly stated, but we are enabled to announce it, that the proprietors of the De Lank granite quarries have obtained the contract for the supply of the stone for the new lighthouse which the Trinity Board are about to build on the Eddystone reef. Over 30,000 tons of dressed granite will be required, and the contract extends over three years. De Lank is also supplying large quantities of granite to the Government dockyards. This is a good stroke of business, and will greatly enliven matters in the Bodmin and Wadebridge district.

The Royal Cornwall Polytechnic Society holds its annual exhibition next week under the presidency of Mr. Richard Taylor, F.G.S. There is every prospect of a large and valuable exhibition in all classes, and the mechanical department is likely to be fully up to the high average of the past few years. The entries include—Hathorne's Eclipse rock-drill and Reliance air-compressor; Edwards and Co.'s rock-drill; Holmer's patent portable automatic lighthouse and buoy illuminating apparatus; Richards' new form of spring stamps for tin or other ores; King's patent shaft coupling for repairing broken propeller shafts at sea; Carder's continuous action kiln for burning highly refractory and other clays economically; vitreous and other bricks, tiles, and pottery made from hitherto worthless material—the Patent Brick, Tile, and Pottery Company; Jordan and Son's hand-power rock-drill for tunnelling; Player's porous non-conducting cement for steam boilers; Leed's patent office door dial; Ball's automatic efflux ventilator and invalid bed and arm chair; West's patent six-cylinder steam-engine; Zanne's electro magnetic bells; Baker's patent check till; Pumphrey's new patent printing process of collagraphy; Blakey's new foot lathe; House's patent alarm; Roberts' patent frictionless capstan, &c.

Aug. 22.—*Telegram*—The drop of 2*l.* in the tin standard just announced, although not altogether unexpected, and although it has brought the price down to the lowest figure yet reached, has not produced that general feeling of despondency that might have been anticipated, as it is generally thought to be due rather to financial than to commercial considerations, and to originate in causes which an improved state of the money market will remove. The share market has, however, been very dull.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

Aug. 22.—Little change has taken place with respect to the leading industries of the county since last notice, but the hopeful feeling that then prevailed as to the improvement in the iron and coal trades continues. Lead mining goes on much as usual, but there is some prospect of an increase in the production, which for the last two or three years has been falling off. There are a considerable number of mines that have been opened out, or partially developed, now standing, whilst there are only a few that are doing a really paying business worth speaking of. Ironstone in large quantities continues to be imported from Northamptonshire, there being a favourable rate by the Midland into Derbyshire, whilst the ore can be purchased on easy terms, so that in all probability it is nearly as cheap as the local ore can be raised. Stocks of pig have decreased of late, and there is every appearance of improvement. Makers' prices are firmer, although as yet there has been no advance, but the prevailing opinion on all sides is that the lowest point has been reached. The foundries are rather better off, and there has been an increasing demand for water and other pipes, whilst the Bessemer Works at Dronfield are still busy in the rolling of rails.

Several of the leading collieries are now raising more coal, so that the miners are better employed, but there is still a considerable number not making more than three days a week. The business doing with the Metropolis keeps up very well for the season, and no doubt house coal will continue to go off better as the season advances, but prices are likely to continue much as they have been, for coal will remain to be a drug for a very long time, seeing that the productive power has far outstripped the consumption, whilst new collieries even now are being sunk in Derbyshire, as well as in many other parts of the kingdom. Steam coal has gone off rather better, but there has been very little change with respect to engine fuel, slack, or smudge, which is not easily disposed of. The defective sanitary arrangements in several villages in North Derbyshire is now being experienced in the shape of typhoid and scarlet fever, but means are be adopted by the authorities to improve the drainage, and also to provide a supply of good water.

In Sheffield several of the leading branches of the trade are now in a better state than they have been since the commencement of the year, and this state of things is likely to continue. Large Government orders are in hand for heavy armour-plates, although not so very long since it was expected that they would be superseded by steel-faced plates. The experiments made with the latter, however, were not altogether satisfactory. But there is no doubt but what our armour-clad vessels will ultimately have an outside skin of steel, as its resisting power is far greater than rolled iron. The production of Bessemer goes on increasing, it being now used for purposes which it was not formerly, but of course the great consumption is due to the rails, makers of which are as busy as ever, whilst orders are coming so freely to hand that there will be plenty to do for months to come. Australia and Russia are still taking large quantities of goods from us, but the transactions with America are comparatively trifling. For some qualities of table, pen, and pocket knives there is a tolerable business doing, but all hands are not fully employed. The foundries are scarcely so busy as they were a short time since, but as a rule there is sufficient doing to keep the moulders on full time. Makers of malleable iron are working very well, and this branch of business has not declined much during the year. File makers are now better off, and the same may be said of those engaged in the making of spades and shovels. Ironmasters do not appear so desirous of selling as they did, although at some places the stocks are large, but the feeling of a rise in the price of pig is general, hence the disinclination to accept present quotations. In the Leeds district the improvement in the iron trade continues, and the workmen more fully employed.

The strike of the colliers against the introduction of riddles into the pits in West Yorkshire continues, but this has in no way interferes with those trades in which large quantities of coal are consumed, for supplies are easily obtained from other districts.

In South Yorkshire the coal trade has slightly improved, but at very few places are the men working full time, or likely to be. The strike at Manver's Main still continues, and there are no signs of its terminating. At Dodworth Silkstone the non-unionists are still in the ascendant, and the Union hands are very quiet with respect to them. At the Wooley Colliery a number of the miners are still out against a proposed reduction of wages.

On Tuesday last there was the usual half-yearly meeting of the Thorp's North Gawber Colliery Company at the offices near Barnsley. Reporters were not admitted, so what was done was not intended to be made public. The working for the year, it may be said, has involved a heavy loss, so that a short time since it was determined to close the pits. But it is not unlikely that the men would submit to a reduction of wages if by so doing the company could be enabled to continue working.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

August 22.—The prolonged quietude that recently seemed to have been relieved has come over the iron and coal trades of this district once more, and the reports of traders on the exchanges are this week not characterised with the amount of buoyancy lately observable in some quarters. The pig makers are finding a lessened demand for immediate consumption from the mills and forges, and the orders from the iron founders, too, are not, on the whole, increasing. One firm, however, in the Dudley district, which alike makes pigs and casts heavy pipes, &c., has lately blown in another furnace, with a view, it is understood, of being in a position to execute a considerable new iron foundry contract; prices of pigs are rather less firm than a few weeks ago. Finished ironmasters are getting short of orders in not a few instances, and they assert that the probabilities of their books becoming refilled yet awhile are remote; but there are cases in which the work in hand is still considerable. Quotations are in buyers' favour more than they have been at any time since last Quarter Day.

The New Side Ironworks, Walsall, have just been sold to Messrs. Thomas Southan and Co. by Messrs. Hipkins and Harrison, who until recently have carried on the works in conjunction with their Cormorant Ironworks which adjoin; both works will continue to roll sheets of the sort used by the galvanisers and similar hardware manufacturers.

The well-known firm of Messrs. Baldwin, iron founders and ironmasters, of Stourport, has just lost its senior partner in the death of Mr. T. J. Baldwin after a few days illness. The deceased gentleman, who was 57 years of age, was much respected, as he deserved to be.

The draft Mines Drainage Award for the Kingswinford district, made some little time since by the arbitrators under the South Staffordshire Mines Drainage Acts, has now been made binding by the arbitrators upon the commissioners and the colliery owners affected. This ensues upon there having been no objectors to the draft document at the meeting fixed for the hearing of objections last Saturday in Wolverhampton. We have published the substance of the award previously.

The Cannock and Huntington Colliery Company have issued their report in advance of the annual meeting. They expect to have the tubbing essential in the Chaudron process of sinking which they are carrying out affixed in one shaft by the close of the year, and in the other by May next. By an arrangement with Lord Hatherton (the owner of the land) and Messrs. North and Son (the lessors of the company) the company will be let off with a reduction of 6250*l.* in the minimum royalties, payable on the sixth, seventh, and eighth years of the terms of the lease.

The greatly increased value of money, and the unrelieved depression in trade, are resulting in the pulling up of some of the small concerns engaged in the iron and coal trades of South Staffordshire. Since my last Mr. Jacob Bell, of the Millfields Ironworks, Bilston, has filed his petition for liquidation, with liabilities estimated at 1200*l.*, and assets at 500*l.* The creditors of Chas. Lester and Hezekiah Oliver, of the Newlands Colliery, Pelsall, have met their creditors with unsecured liabilities 532*l.*, and assets 56*l.*, but the creditors have not yet determined what steps to take. The creditors of Isaac Russell, ironmaster of Smethwick and West Bromwich, met in Birmingham yesterday, and accepted a composition of 2*s.* in 1*l.*; the total liabilities were 3769*l.* against assets 729*l.* The creditors of Messrs. Blackhurst, Lloyd, and Thomas, trading as the Victoria Iron Company, West Bromwich, have determined to liquidate the estate; the total unsecured debts were 2093*l.*, and the amount of assets available for the general creditors was only 12*l.*

This week the works and pits in North Staffordshire display a fair amount of activity, but it is mostly the result of the orders which accumulated last week, when the machinery was generally at a standstill, as the men were keeping one of their local annual holidays. There is this week a report that "the wages of the engineers and turnsmen at several of the pits in Hanley have been reduced 10 per cent. This has the effect of reducing the average weekly wages per man at the present rate of working to less than 10*s.*, and great dissatisfaction prevails."

REPORT FROM THE FOREST OF DEAN.

Aug. 22.—It is pleasant to record even a little improvement in the way of trade. And we are pleased to be able to report some increased trade at some of the collieries—Crump Meadows, for instance, where last week there was as much done as has been accomplished there in two or three weeks some little time since. We hope that it may not prove a mere spurt, but that it will continue. At a few other collieries there are also some indications of improvement: but almost everywhere around us there are buoyant hopes of coming trade, which it is hoped may be realised. There is little change in the iron trade, except that the Messrs. Crawshay are rapidly reducing their stock of pig-iron by sending it off. The same have just improved their machinery at Buckshaft Mine, and the large and substantial engine-house for reaching the deep measures of iron ore at Shakemantle is drawing towards completion, and shortly the powerful plant will be up; and then, if the expected improvement in the iron trade should shortly arrive, the Messrs. Crawshay will be in a position to raise almost any quantity of ore that may be desired. We have also to record another change—that the Great Western Ironworks at Sewdley are to be adapted and used for the production of steel, under the management of a new and enlarged company with adequate capital, to be called, we understand, the Severn Steelworks.

The Act for the erection of the new bridge over the Severn at Newnham has received the Royal assent. It is to be a toll bridge, and it is stated that a company is in course of formation for its construction, which it is expected will come before the public with such an array of names as will command public confidence. The gale dinner, which came off on Tuesday, was unusually cheerful and in business tone, the speakers being expectant of improved times. The company included the Crown Receiver (who presided), Sir J. Campbell, Messrs. A. G. Clarke, T. Giles, Maynard Wemys-Colchester, E. Crawshay, J. Trotter, G. B. Keeling, A. D. Morrison, O. Barrett, T. B. Brown, J. G. Sulley, C. C. Hough, J. G. Keeling, S. W. Woods, W. H. Hinton, F. Goold, A. H. Moule, D. Wintle, C. W. Henderson, J. Gallop, J. T. Thomas, A. Thomas, G. Hough, A. Ridler, W. H. Phillips, &c. All the local interests were represented, and toasts suitable to the occasion were given and duly responded to, the speakers evincing buoyant hopes of the coming revival of trade. Such gatherings are undoubtedly adapted to cultivate a spirit of emulation and kind feeling. And, as new railway facilities will be opened up by the several companies as soon as the Severn bridge is completed, we may reasonably believe that the district in all its interests will be considerably benefited thereby.

REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

August 22.—A case of some importance to colliery proprietors has been heard at the Pentre Police Court, in the Rhondda Valley. Messrs. Watkinson and Sons, Fernhill Colliery, Treherbert, have been summoned for deducting a half day's pay illegally from about a dozen of their hauliers. It appears that as some empty wagons did not arrive at the time expected the hauliers were ordered at noon to leave the pit. They did so, and discovered afterwards that half-a-day's pay had been deducted from their wages. The case was adjourned to ascertain what was the custom of the district in the matter. Another case against the same defendants by certain colliers who claimed 6*l.* 10*s.* each for illegal dismissal was adjourned for a week, in order that the stipendiary may have time to consider his decision. The case involves the question of giving a formal notice of the adoption of new rates of pay. Two accidents have occurred at local collieries during the week. At the Gelly Colliery an engine-house has been accidently burnt down, and the engine much damaged; the loss is estimated at between 800*l.* and 1000*l.* An outbreak of subterraneous fire has occurred at one of the Plymouth pits, Merthyr, but no serious damage was done. Messrs. Beddoe have commenced operations in opening up a new pit at Gelligaer, and it is to be hoped their efforts will prove successful.

Efforts have recently been made, and a meeting called at Newport, to found a metal market in that town, in connection with the new Tredegar Memorial Exchange, to be opened in the course of a week or so. Although there was a small attendance at the meeting named, it is understood that the matter has been warmly taken up by many interested in the staple trades of the district, and will certainly prove a great boon to many in transacting their business at one central spot, instead of as heretofore at the principal hotels.—A meeting of the Monmouthshire and South Wales Colliery Owners' Association has been held at Cardiff, but was private. The discussion, it is stated, was mainly as to assessment to the income tax of works in the district.

The Swansea Wagon Company's report shows that a profit of 502*l.* 18*s.* 2*d.* has been made during the year, being an improvement as compared with last year. Considering the state of trade the directors consider the report satisfactory. The disposable balance is not sufficient to pay any dividend. The Penarth Harbour, Dock, and Railway Company directors recommend a dividend of 4½ per cent. per annum for the past half-year, the same as the preceding and corresponding one.

As to the state of the staple industries of the district, it may safely be stated that trade is on the move. So far as the iron trade is concerned, in parts of the district most affected by the wide-spread depression, there certainly is a little more activity. Although orders for railway iron are not numerous, and prices very low, still there are some fair enquiries set on foot, which it is believed will lead to business. Of course, the railway iron department is by no means what it was in days gone by, when Cyfartha was briskly employed, for gradually the demand is going over to steel, especially so far as home railways are concerned. Clearances have been rather small during the week. The bar-iron department is a little more active. The Steel Trade continues in about its wonted condition of activity, and another local company is stated to be about erecting steelworks. The Tin-Plate Trade is also but little changed, and no improvement can be noted. The Coal Trade is fairly active. There are complaints as to the scarcity of good orders, but the fact remains that shipments are well up to the mark, especially as regards foreign clearances of coal. However, prices do not seem likely to rise, and the output is as large as ever—rather larger, in fact, for many pits are more regularly employed. There is a brisk demand for steam coal, while for house qualities, although the enquiry is a little more active, this branch must be designated as dull. The patent fuel department shows a slight improvement; in fact, as before stated, trade is slightly "on the move."

The College Ironworks, Whitechurch, which, owing to the depression of trade, have been stopped for the last two years, are about to be reopened. At the meeting of the proprietors and men, held at the works, on Tuesday, the men agreed to commence work at a reduction of 25 per cent. from the old price. The prices to be paid will be—for best iron, 6*s.* 2*d.* per ton; common, 4*s.* 6*d.* per ton. The works have undergone extensive repairs and improvements. In addition to the usual plant, a complete set of rolls for steel, new boilers, and other machinery have been added.

WELSH INDUSTRY AT THE PARIS EXHIBITION.—An account of the display of the Welsh industry at Paris would be incomplete without some mention of the magnificent display made by the Landore Siemens Company (Limited), which, somehow or other, appears to have escaped the attention of the numerous special correspondents. If the British iron and steel industry were represented only by the beautifully finished and almost faultless specimens of locomotive forgings, steel rails, and other specialities for which their works have acquired such a deservedly high reputation, they would suffice to show that in the United Kingdom there were establishments which could produce iron and steel works of the simplest or most complicated description, of a quality and finish not surpassed by similar productions from any continental works, those of Krupp, at Essen, forming no exception. It cannot be said that the various articles are well displayed. They are shown much in the same manner as they would be seen in the foundry or the workshop. Yet, to any experienced individual, the true excellence of the display is perceptible at a glance. Hence the frequency with which it has been inspected by continental ironmasters. Perhaps the specimens of locomotive and railway wagons, tyres, and axles have attracted as much attention as any, a circumstance which may be explained by the defective character of many of the tyres and axles in use on continental lines, where economy is often but another name for unwise parsimony. There are steel plates, angles, and beams for shipbuilding, weldless rings for boilers and weldless boiler plates, engineers' and marine forgings, cast and forged shell, and several samples of iron and steel manufactured direct from the ore. A description of these would be superfluous, but the company might have explained that the various exhibits were not manufactured for mere show, but honestly represent the ordinary workmanship of the establishment at Landore. It is here that the British section is so strong. Our manufacturers have not sought to impart a false gloss to their wares by means of an abundance of show and tinsel, but have submitted them in exactly the same condition as they are to be found in their warehouses to the criticisms of the industrial world. After all, we should think this will prove the soundest policy.

Mr. Joseph Bernays, of Newgate-street, London, shows a patent mechanical stoker for steam-boilers, invented by Mr. H. C. Carver, of the Railway Works, Llanidloes, and the merits of which have been minutely inspected by the various gentlemen forming the jury in this class. As is well known, the mechanical stoking of steam-boilers is a subject which has for several years past engaged the attention of inventors, numerous patented contrivances, each of a more or less ingenious character, being the result. As yet, however, not one has been invented which has not some defect seriously impairing its efficiency. Nor is this to be wondered at, considering the nature of the work required. Mr. Carver, profiting by the lessons afforded by the failures of his preccessors in the work of invention, appears to have perfected a contrivance which bids fair to prove the most successful of any yet submitted to public notice. This is that shown at Paris. Briefly described, it consists of three parts—a fuel hopper, an apparatus for breaking up lump coal and delivering the fuel as required out of the hopper, and a kind of fan which disperses the fuel over the grate. There is nothing specially new we believe in the

construction of the hopper, but the breaking and feed regulating apparatus shows the important results which a practical mind can achieve with simple means. It is made principally of hardened steel, and will readily break moderately large lumps of coal, the supply from the hopper, whether consisting of duff, slack, or lump coal, being controlled by the feed-regulating valve, which appears to answer its purpose in every respect. The fan is mounted on a horizontal axis on the furnace door (the opening or shutting of which is not interfered with), the driving being effected by means of a flexible shaft. The whole of the apparatus can be set in motion by a single belt. Should the invention answer the expectations formed of it a considerable saving of expense will be effected in the generation of steam, a less quantity of fuel being required in consequence of the rapidity with which the stoking operation is performed preventing the loss of much heat.—*South Wales Daily News.*

TRADE OF THE TYNE AND WEAR.

Aug. 21.—On the whole, a slight improvement in the coal trade may be noticed, and the best steam coal works are steadily employed. As noticed lately in this letter the masters at the north part of the steam coal field had asked for a reduction in the prices paid to the men. At Shilbottle they have accepted a reduction of 2d. per ton; at Broomhill 4d. per ton reduction has been demanded, but this has not yet been accepted. The Pegswood Colliery has been closed, and the village is now almost entirely deserted, the windows and doors being boarded up. Only the first class works are fully employed, second class works being but partially employed from six to eight days per fortnight. In Durham pits are still being closed, and many of the works have made little more than half time lately. One of the pits at Team Colliery has been stopped owing to the continued depression of trade; only one pit is now worked there; this is one of the oldest coal works in the district, coal having been worked in the estate for ages. Of course, the best seams are almost exhausted. This estate belongs to Earl Ravensworth, and it has produced a large quantity of excellent coal from the earliest period of coal working in this district. The demand for gas coal is good, and the best works are pretty well employed; indeed, some of the works of Messrs. Joicey, in West Durham, are going full time, but of course this is an exception; the demand for all second-class coal is quite insufficient to keep the works going.

The North-Eastern Railway Company half-yearly report shows a a great reduction in the receipts from traffic, and we thus get a clear view of the results of the long depression suffered by the mineral trades. The falling off for the half-year amounted to 513,790 tons of coal and coke, and the falling off in receipts of money in consequence was 58 702*l.*, the total falling off in the receipts for all kinds of traffic being 143,676*l.* During the past 10 days there has been some revival of trade on the company's lines within the limits of the Tyne and Wear, and this is evidently caused by increased shipments of gas and house coals and of pig-iron; it is, therefore, hoped that a reaction has commenced, and that better times may be looked for.

The sinking of the shaft at the new winning at Whitburn by the Chaudron system continues to progress satisfactorily. The bore, 5 ft. in diameter, was completed some time ago to the required depth below the limestone, and the bore the full size of the shaft, which will be 12 ft. in diameter inside the metal shield, is approaching completion also; there can, therefore, be no further doubt as to the success of the operation, although, owing to the extreme hardness of the limestone, the progress has been necessarily slow. It is likely that a shaft will shortly be put down on the same system near Saltburn, on the Yorkshire coast.

The market at Middlesborough, on Tuesday, was not so well attended, owing to the Stockton Race Meeting. Though makers are pretty firm the market was scarcely so promising as last week. It is stated that a good deal of iron has changed hands in the interim. The statement is vouched for on the best authority that considerable sales have been made by merchants over next year at 40s. 6d. No. 3, about 1s. advance on present rates. The quotations of makers are, as a rule, firm at No. 1, 43s.; No. 3, 39s. 6d.; No. 4 forge, 38s. 6d., less 1 per cent. commission. Merchants buy of each other for less. The Scotch shipments last week showed some falling off from the deliveries of the previous week, but they were, nevertheless, in excess of the deliveries for the corresponding week of the previous year. There is a steady and growing demand for shipment to the Continent, and the impression seems to be gaining ground that there will be a gradual improvement in the pig-iron trade till at least the close of the navigation season. The scarcity of forge-pig, noticed for some time past, is still apparent, and prices for this quality are relatively stiffer than those of other numbers as a consequence. Anxiety, however, is shown for an improvement in the manufactured iron trade, which has been quiet for a considerable time past. Ship-plates are 6*l.* 5s.; bars unaltered; angle-iron, 5*l.* 12s. 6d.; iron rails, 5*l.* 7s. 6d. to 5*l.* 10s.; sheets, 7*l.* 17s. 6d. to 8*l.*, less 2½ per cent. Puddled bars remain unchanged at 3*l.* 12s. 6d. net. The engineering works, with few exceptions, are well employed, though work for the future is not so promising.

REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

Aug. 22.—The Llanrwst district has been fruitful in letters of late, and to a stranger it seems time that the great mining companies of that region should sink their differences and settle to their work. I would suggest to some one of that neighbourhood possessed of sufficient knowledge the desirability of the construction of a section through the district (say) from Capel Curig, or a little further north-west, to a point between Bettws-y-Coed and Llanrwst, which shall show the variations in the strata, together with the productive and unproductive beds. The one great want of that district is this settling down to intelligent, honest, persistent mining, with the intention of making the lodes, the average character of which by this time is known, pay.

Aberllyn, with 9 tons of blende to the fathom of the lode, which is 2 fms. wide, ought to do something, and if it does not with these resources the fault must be outside of the mine.

It is a real pleasure to me to read in the Journal that the "bluestone" at Morfa Ddu has been entered into. Passing by these mines the other day I could not but wish to see once again the whole of the works in full operation. It may interest some readers of the Journal to know the composition of the bluestone. As treated at the neighbouring works of Messrs. Henry Hill and Son, at Amlwch, it yields zinc, 32 per cent.; lead, 16 per cent.; copper, 2 per cent.; and silver, 7 ozs. to the ton. It has also variable quantities of sulphur, antimony, and iron, with minute traces of gold. These minerals are so intimately mixed as to cause it to require careful chemical treatment in the work of separating the various ores. In Cardigan the various mines are working much as usual, but none of the prospective ones seem at present to be attaining the desired successful result. There is unwonted activity among the lead mines of the carboniferous limestone in Denbighshire and Flintshire. Pant-y-Mwyn, notwithstanding its excellence, seems to bear a deal of writing up; and may we not safely say that England is the only country in the world where capital would be invested in a mine on the strength of a report like that pertaining to the "Lead Era," published last week. It is getting time that we had something different from the *ipse dictum* of mining captains, however valuable their opinions may be. How easy it would be to give less rhetoric and more detailed facts if the latter were only known.

The last number of the Quarterly Journal of the Geological Society contains a paper by Dr. Callaway, of Wellington, Salop, "On the Quartzites of Shropshire." The quartzose rocks referred to are found in the Wrekin and Church Stretton areas. Dr. Callaway is inclined to consider them as older than our Lower Cambrian rocks—1. Because in the Longmynd Hills, where there are Cambrian strata 25,000 feet thick, he has not met with anything lithologically like them.—2. Because their dip is different from the dip of the strata of the Longmynds.—3. They are unconformable below beds proved to be arenig. Now, these reasons may prove his conclusions or not, for, first, few if any of us have a minute acquaintance with the variations in structure over any considerable area of any of the vast series of beds making up the masses of the Longmynd Hills; secondly, the difference in the dip may be simply due to one or more of the many faults with which the district referred to is broken up; and, thirdly, as to unconformability. The author admits a conformability at some points, but argues that this apparent conformability may be the result of a fault. True, but may not the unconformability elsewhere be due to the same cause? Dr. Callaway has not be able to resist the tendency now in fashion of making everything in geology as old as it can be made. Certainly the evidence he adduces for the greater antiquity of these rocks than that usually supposed is vague.

Another colliery is to be closed. Notice has been given to the men at the Vron Colliery, near Wrexham, that the colliery is to be closed on the 31st inst. The St. Martin's Colliery Company have held their first meeting at their offices at St. Martin's, Lord Edwin Hill-Trevor, M.P., presiding. It was stated that the pits had now been emptied of water, and preparations were being made for getting coal, and for the manufacture of bricks. The Plaskynaston Colliery Company have stocked a good deal of coal during the summer, but this has been the practice of this company, the accumulated stocks being cleared off during the winter months.

Operations have actually commenced on Bala and Festiniog Railway, which is to connect the Great Western Railway with the slate district of Festiniog. It is possible that this line may open up a new mineral district. There were several manganese mines opened formerly along its route, which were closed partly on account of the heavy charge for carriage. There is also a lead district about half way between Bala and Festiniog, which, with greater facilities, may pay for working. It is reported that the preliminary difficulties at the Queen's Sett and Stone Quarry near Portmodoc have been surmounted, and that work will be resumed here, the works having been completed for the working of the quarry and the conveyance of the stone to the railway.

FIRE DAMP IN COAL MINES.

At the British Association, Prof. C. FORBES read an important paper descriptive of an instrument for indicating and determining fire-damp in mines. The instrument consists of a resonator of variable dimensions and a tuning-fork of definite pitch. The resonator is a metal tube, 1 in. in diameter, and 14 in. long, in which a piston slides, so as to regulate the length of the tube. This tube is fixed to a block of wood, to which is attached a tuning-fork, whose points are just above the open end of the tube. The tuning-fork is sounded in a very convenient way, and the piston is moved until the proper length is found, which is indicated by the resonator intensifying the sound of the tuning-fork. Barometric pressure produces no difference on the instrument. The temperature correction is made by reading off a thermometer of the proper dimensions instead of reading off a fixed mark on the piston. The only error is by the presence of dense carbonic acid gas, but carbonic acid gas tends to destroy the explosive character of fire-damp, and it appears that if the presence of carbonic acid prevented the instrument from indicating fire-damp it would certainly be sufficient to prevent the explosive character of fire-damp.

Prof. PERRY said they were very much indebted to Prof. Forbes for the paper he had read, descriptive of the new invention. (Hear, hear.) Anyone contributing to science something which would have the effect of diminishing loss of life in coal mines would confer a very great benefit upon the nation. (Hear, hear.) He (the speaker) believed that if Mr. Forbes' instrument were adopted by the coalowners, who were very slow to adopt measures of precaution, there would be a saving of life to the extent of 75 or 80 per cent. of those who lost their lives in mines. Mr. Scott had shown before the Royal Society that by the barometer which he had in his observatory 50 per cent. of the lives lost in the Lancashire district in the Wigan coal mines might be saved if proper attention were given to its indications. It was generally admitted that 30 per cent. of life might be saved if the thermometer indications in mines were not unheeded. Here, however, was a small instrument invented by Prof. Forbes which would be useful when occasion arose to show when immediate precautions were necessary in coal mines. (Hear.)

Mr. WILLIAMS, who had practical acquaintance with coal mines, stated that carbonic acid was a far more prevalent impurity in coal mines than any of the hydro-carbons, and the danger from these arose from bad ventilation. He had been in mines where he had heard the fire-damp hissing out of the coal, and on one occasion the agent who was present set a light to the fire-damp, the result being an explosion in the drift where they were. Certainly the sensation was not pleasant, for he thought that was killed. (Laughter.) He stated this to show that they might have great quantities of fire-damp in a coal mine if they had good ventilation.

Dr. THOMPSON remarked that in the Bristol district, with which he was familiar, he had looked to the state of the barometer there when explosions had occurred in England and Scotland during the last two years, and he found that the explosions occurred, not when the barometer was low, but when a sudden depression crossing over from the Atlantic took place. He, therefore, did not see that Prof. Forbes's instrument would help coal miners much, especially as they now neglected the warnings of the barometer, and otherwise manifested their contempt of danger.

Prof. FORBES, in reply, quite admitted the value and importance of good ventilation in coal mines. Coal dust was a great evil at the time of an explosion, although there was no evidence to show that small coal or dust had ever caused one. When a sudden barometrical depression took place his instrument would be affected. He did not say that it would serve as a guarantee in all cases against colliery explosions, but he thought that in this direction a step might be gained if they had something by which to determine the amount of fire-damp in a mine. (Hear, hear.)

Dr. J. STERRY HUNT, F.R.S., read a paper "On the Origin and Succession of the Crystalline Rocks of North America." Their origin, he observed, is still a subject of debate between Plutonists and Neptunists. According to the former they represent the igneous crust of the globe, and their stratiform structure is due to agencies anterior to the production of sedimentary rocks. The Neptunists, starting from the fact that the elements of an aqueous sediment may, through the action of chemical and crystallogenic forces, pass into new combinations and acquire a new structure, contend that not only all indigenous crystalline rocks have had an aqueous origin, but that the exotic masses themselves represent the last stages of alteration or metamorphosis of sedimentary beds. Further enquiry into the chemical and lithlogical composition of the crystalline rocks, however, brought to light difficulties in the way of both theories, and have led to their general rejection for a third, which supposes these rocks to have been formed by a subsequent local alteration of portions of the ordinary plutonic rocks. It accounts for the presence of various exceptional varieties of rock among ordinary plutonic formations by supposing that limited portions of these have at different times been the subject of very unlike chemical processes, resulting in their complete change into new forms of rock by what has been called pseudomorphic alteration or metamorphosis. As, however, such a conversion involves a change, not only of form but of substance, it has been more properly designated a metasomatosis. There are, however, reasons for believing that in eozoic or the pre-Cambrian times there prevailed chemical activities dependent upon greater subterranean temperature, different atmospheric conditions, and abundance of thermal waters, and that under these circumstances were deposited the materials for the crystalline rocks. Delabeche, in 1834, imagined them to be chemical deposits, due to the action of the heated ocean upon the earth's primeval crust before the dawn of life. Dr. Hunt's researches into the composition and structure of the crystalline rocks, conjoined with his studies of the chemistry of natural waters, led him, in 1865, to reject the hitherto received view of the epigenic or metasomatic origin of serpentine, steatite, chlorite, and similar rocks, and to maintain their derivation from silicates formed by chemical processes and deposited in the water of lakes or seas. This view he soon after extended to the various other exceptional rocks found in crystalline formations, which it was, in 1854, asserted had been "formed of a crystalline molecular rearrangement of silicates generated by chemical process in waters of the earth's surface." We have thus, in his opinion, a reasonable mode of accounting for the various sorts of the crystalline formations, and a consistent and complete Neptunian theory, which does not involve the aid of metasomatosis. The question of the relation of the indigenous rocks to the endogenous and exotic masses found in them was noticed in the paper, the author alluding to the hypothesis which he has elsewhere maintained that the source of all exotic or eruptive rocks is to be found in the displacement or extravasation of ancient deposits of Neptunian origin. Coming to the second division of his subject, he maintained that the study of the crystalline rocks of North America shows the existence of several distinct groups or terraces. Two divisions make up together the Lower Laurentian of Logan, of which the thickness in Canada may greatly exceed 20,000 feet. Another series, which abounds in great beds of titanic iron ore, has a volume which may exceed the thickness of 10,000 ft. assigned to it by Logan. The Laurentian is in many parts overlaid by the Huronian, which is characterised by a great development of greenstones, generally hornblendic, with epidote, chlorite, steatite, serpentine, and soft mica schists, often called talcose, besides argillites, quartzites, and limestones, generally magnesian.

Dr. HENRY HINKS read a paper on some new pre-Cambrian areas in Wales, which led to a warm discussion.

The Abbé RENARD, addressing the section in French, which was translated by the President, observed that he had examined the Ardennes of France and Belgium, the rocks of which, like those of a similar character in England and Wales, appeared to him to be pre-Cambrian. Only the upper beds of the Ardennes were fossiliferous. There were no signs of contact with intrusive or eruptive rocks, and no vitreous appearance. He regarded the rocks as originally sedimentary, and deposited under conditions with which we are at present unacquainted.

Prof. HULL said that they were all gratified at the presence of Prof. S. Hunt, to whom they were much indebted for the light he had thrown on the formation by hydrothermal processes of those veins which he called exotic, and on the origin of those enormous masses of crystalline material of Canada and North-Western America. Geologists, however, should beware of the conclusions which he appeared to have drawn from his rapid survey of the crystalline rocks of the North-West of Ireland, Scotland, and Wales. He (Prof. Hull) entirely dissented from the view expressed by Dr. Hinks of the correlation of the crystalline rocks of the north-western portions of the British islands with the ancient crystalline rocks of Canada belonging to the Laurentian and Huronian periods. He thought if anything was established it was the succession of the crystalline rocks of the Highlands. He protested against amateur geologists—("Oh, oh")—no matter how able and distinguished, making rapid traverses of such a country as North Wales, and issuing data with regard to its structure, and then putting forward views so entirely different from those arrived at by trained members of the Geological Survey, who had spent many years in the careful step-by-step delineation of the country.

The PRESIDENT remarked that there was no feeling between the Geological Survey and the amateurs, unless that the latter were naturally anxious to find something which the former had not found, and to make the most of it. He believed the amateurs had respect for the great authority of the Survey, but if there were to be no geology except what existed by Act of Parliament then progress would be slight. (Applause.)

Prof. HUGHES thought that Dr. S. Hunt and Dr. Hinks had been doing a great deal of good.

The Rev. W. H. SYMONDS said that his 30 years' observations as an amateur, not only in these countries, but all over Europe and America, led him to agree with Dr. Hunt.

Mr. J. THOMSON stated that in the Hebrides he had found exactly the same structures of rocks as those which Dr. Hunt had described as occurring in America.

Prof. HULL said that he had been unfortunate in using the word "amateur," for no one had a higher respect for the labours of amateur geologists. Before the formation of the Ordnance Survey they were indebted to those gentlemen for all their information. He had not the slightest wish to disparage the labours of Dr. Hinks and his friends. What he should have said was that if any geologist had spent the same time and had employed the same methods as the Geological Survey in examining the structure of the North-West of Ireland their work would be entitled to equal authority with that of the Survey.

IMPORTANT PROSECUTION UNDER THE MINES REGULATION ACT.—At the Leigh Police Court Joseph Clemenson, certified manager of the Kirmishaw Nook Pit of the Astley and Tildesley Coal and Salt Company, Astley, was summoned for not providing adequate ventilation in the pit, being a breach of the first general rule under the Coal Mines Regulation Act, 1872; and Robert Leather, fireman, was charged with a breach of the second rule in not having made a full and true report of the state of the Six-feet mine on Aug. 2.—Mr. Holden, for the prosecution, said if the Act was not to be a dead letter there could be no possible defence by the defendant. Mr. Dickinson, the Chief Inspector of Mines, had favorably known the defendant for some years, but had brought the case forward in order that the law might be vindicated.—George Henry Peace, assistant manager, said safety-lamps were used in the workings, and on Mr. Dickinson finding gas witness blew out the naked light at the bottom of the shaft. Mr. Dickinson deposed to visiting the mine from a communication made to him. There was a cavity caused by a fall of roof about 30 ft. from the shaft. On finding an opening through the timber he put his safety-lamp into it, and gas fired in the lamp. The first thing he did then was to see that the naked light was put out. He tried for gas in other levels, and it fired in his lamp as before. The defendant, who accompanied him, ordered all the men out of the pit. If the ventilation, which was otherwise good, had entered these cavities the gas might have been diluted, but had the gas lighted at one end it would have gone from hole to hole, and he believed no one would have come out alive. In cross-examination by Mr. Peace for the defendant Mr. Dickinson declined to say who had sent the information. It was his practice to burn such letters at once. If he divulged the names it would interfere with communications to him. Mr. Peace held that it was not reasonably practicable, as the Act required, for the defendant to know that there was gas in the mine when the man who made the inspection reported that all was safe. The previous fireman had only been discharged a day or two before for having been found asleep, and when Leather was appointed this man went round the workings with him, but did not point out the existence of these cavities. He had no doubt the discharged fireman gave Mr. Dickinson the information.—Mr. Holden said that was not the case.—Mr. Peace: He may have caused some one else to send it.—Mr. Jabez Johnson said the Bench were satisfied that the case had been proved, and the penalty to be inflicted would be 10*l.*—Leather, the fireman, for making an incorrect report, was fined 20s. and costs, he having only been a fireman a day and a half previous to Mr. Dickinson's visit.

NEGLECT IN A COLLIERY—IMPORTANT DECISION.—At the Hinckley (Leicestershire) Petty Sesions, Dr. Samuel Thompson, a physician residing in Scotland, and the appointed agent of the Ibstock Colliery, was charged with neglecting to provide adequate ventilation in that colliery. An important point was raised as to the liability of the defendant, he having appointed a certificated manager of the mine to whom he had given instructions that every precaution should be taken to secure proper ventilation. This, however, he had failed to do, and on being visited by the Government Inspector the mine was found in a dangerous state from the presence of carbonic acid gas, and the men were at once withdrawn. The defendant's solicitor contended that the manager was the party to be summoned, inasmuch as he was the party to whom the care of the mine was entrusted. The magistrate held that the defendant was clearly liable, and inflicted a penalty of 10*l.* and costs. Two other charges were withdrawn on payment of costs.

MANUFACTURE OF FUEL.—The invention of Messrs. LACKERSTEEN and BROMFIELD, of Poultry Chambers, consists in mixing the dust of coal with an extract obtained from boiling ordinary seaweed or other similar vegetable matter, producing when boiled a similar mucillaginous or adhesive solution. In carrying the invention into effect they first boil seaweed or other vegetable product capable of yielding when boiled a mucillaginous or adhesive solu-

tion, and then mix coal dust with the said solution in the ordinary manner in which cement, mortar, or other similar material is mixed. The combined materials are then moulded to any desired shape by hand, or by means of a brick-making or other suitable machine. The same solution when combined with sawdust or other suitable material may be formed into blocks for filtering purposes.

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NORTH LONDON RAILWAY COMPANY.

THE DIRECTORS of the NORTH LONDON RAILWAY COMPANY are prepared to RECEIVE TENDERS for the SUPPLY of SIX HUNDRED AND FIFTY TONS of HOUSE COAL,

The deliveries to be extended over a period of eight months, or thereabouts, commencing about the beginning of November next.
Particulars of the terms and conditions of tender can be obtained on application to the Locomotive Superintendent, at the Company's Works, Bow-road, London, E.
Tenders to be sent in before Ten o'clock on Tuesday, the 8th October, addressed to the undersigned, marked outside "Tender for House Coal."
The Directors do not bind themselves to accept the lowest or any tender.
G. BOLLAND NEWTON, Secretary.
Secretary's Office, Euston Station, London, N.W., August 16, 1878.

GEO. G. BLACKWELL,
5, CHAPEL STREET, LIVERPOOL,
PURCHASER OF
MANGANESE, ARSENIC FLUOR-SPAR, WOLFRAM, BLENDE, CALAMINE, CARBONATE and SULPHATE OF BARYTES, ANTIMONY ORE, CHROME ORE, MAGNESITE, EMERY STONE, PUMICE STONE OCHRES AND UMBERS, CHINA CLAY, LEAD ORE FOR POTTERS, TALC, PHOSPHATE OF LIME, &c.

PURIFICATION OF GAS.

The purification of coal and other gases from sulphuretted hydrogen, the ingredient which gives it its unpleasant odour, and the production therefrom in an available form of the sulphur contained therein, has frequently been attempted, but both from the difficulty of carrying out the process in practice and from the danger attending the use of inodorous gas, none of the inventions have come into general use. It is now proposed not only to recover the sulphur but also to utilise various other by-products. With respect to coal gas, Messrs. WALLACE and CHRISTOPHER, of Clapham, first free it from ammonia as completely as possible by any convenient process, in order that a metallic sulphide may not be precipitated in the process hereinafter described. The gas is then passed through a series of washers or scrubbers containing a solution of sesquichloride of iron (commonly termed perchloride of iron) or any other metallic solution on which sulphuretted hydrogen would have a similar effect in converting a sesquisalt into a protosalt with precipitation of sulphur, such, for instance, as sesquisulphate of iron. It is necessary that the said solution be sufficiently acid to prevent the precipitation of a metallic sulphide.

As this solution is corrosive it is desirable to construct the washer or scrubber of such materials as will resist the action of the acid, such, for instance, as lead, earthenware, stoneware, or wood, or, if corrodible materials are used, they propose to coat them with some acid-resisting film. In employing a solution of perchloride of iron when, through the action of the sulphuretted hydrogen in the gas, only a small quantity of the iron remains in the state of perchloride, the remainder having been converted into protochloride of iron, and the corresponding quantity of sulphur precipitated, they pass the solution through any convenient filter, and wash and utilise the sulphur thus filtered off. They then revivify the solution by exposing it to the action of air either in a scrubber or washer, through which air is passed, or by exposure to air in shallow pans or other vessels. They repeat this process indefinitely, adding a small quantity of acid from time to time, as may be found necessary, owing to the possible gradual neutralisation of the acid originally present by the admission of small quantities of ammonia with the gas.

In order to prevent the scrubbers or washers from becoming blocked up with sulphur, they may if found desirable filter the solution from time to time before it becomes exhausted. They can also employ a solution of salt of chromic acid, such as chromate or bichromate of potash acidulated sufficiently by some acid which forms a soluble sesquisalt of chromium. In this latter method the chromic acid becomes reduced by the action of the sulphuretted hydrogen to chromic oxide, which forms a sesquisalt of chromium with the acid present whilst sulphur is precipitated. This sulphur is treated as already described. The solution of sesquichloride of chromium formed they employ for the preparation of various other compounds of chromium. They wish it to be understood that they do not confine themselves to the purification of coal gas by these processes, but may also apply the invention to the purification of other gases, containing sulphuretted hydrogen, and to the utilisation of the sulphur present, such as the mixture of gases given off from the saturator in the manufacture of sulphate of ammonia. The carbonic acid present they afterwards utilise for the production of carbonates of soda, potash, or ammonia by any convenient process.

The following reports were received too late for insertion in their proper place:—

EBERHARDT AND AURORA.—Copies of the telegrams which have lately passed between the board and Capt. Drake:—Received from Capt. Drake on the 9th: "Ore in the mine low grade; breaking daily 12 tons, and shipping 35 tons. On the mine dumps, 100 tons; on the mill dumps, 500 tons. Milling 43 tons daily; average assay, $35; estimated percentage, 60. Am disappointed in outcome, consequently suspended driving the tunnel. Total length on the 6th, 3840 ft. Have shipped bullion, 2700*l*. Want the proceeds telegraphed as fast as it arrives."—Sent to Capt. Drake on the 12th: "Astounded! Come to London immediately. Mill everything. How long can you mill? What do you expect to realise? Reply."—Received from Capt. Drake on the 17th: "Estimated total milling, 3000 tons; yield bullion, 12,000*l*.; shipped yesterday, 1445*l*. Sail about September 3."

WHEAL GRENVILLE.—T. Hodge, August 21: At Goold's shaft we are making very fair progress in sinking; the shaft is going down in the horse of granite. The old lode is in the south side, and on the north side we are frequently meeting with small patches of white elvan, which indicates our near approach to the flat lode. The 140 east end is worth 8*l*. per fathom. The 140 west end is producing low-price tinstone. In the bottom of the 160, at the western shaft, we have begun to stope west of the plat, in which direction the lode appears to improve in value. The 160 east end is worth 5*l*. per fathom. In the 150 east end I think we are just entering the shoot of tin gone down in the bottom of the level above; present value, 8*l*. per fathom. The winze sinking below the 150 east is worth 8*l*. per fathom. Six stopes working in the back of the 150 are worth in the aggregate 40*l*. per fathom. The stope in the back of the 140 east is worth 10*l*. per fathom. The 140 east end is worth 7*l*. per fathom, and likely to improve. The 130 west end is worth 6*l*. per fathom, and the ground is moderate for progress. No other changes.

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In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the TREMENHEERE MINING COMPANY.—The Vice-Warden has, by an Order made in the above Matter, bearing date the 17th day of August instant, APPOINTED CHARLES WILLIAM CLINTON, of Truro, within the said Stannaries, an officer of the said Court, to be absolutely the OFFICIAL LIQUIDATOR OF THE ABOVE-NAMED COMPANY.
FREDERICK MARSHALL, Registrar.
Dated Registrar's Office, Truro, August 17, 1878.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.

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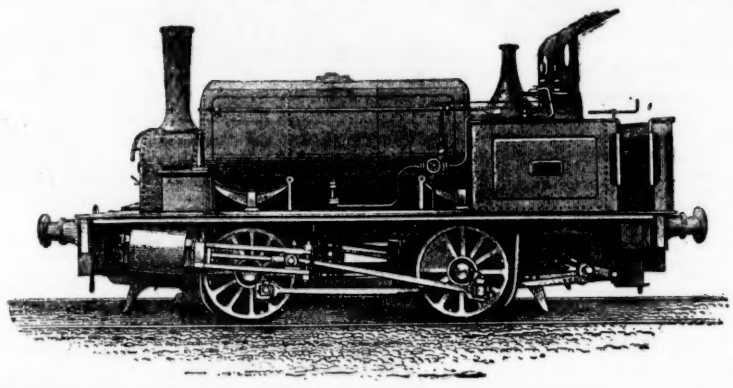

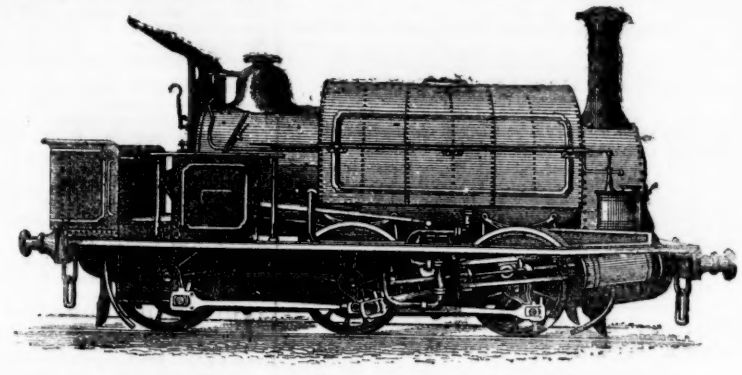

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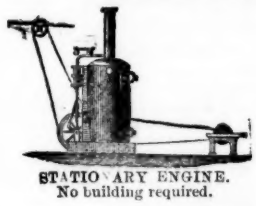
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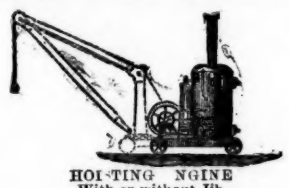
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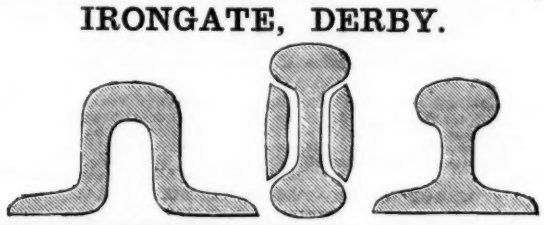

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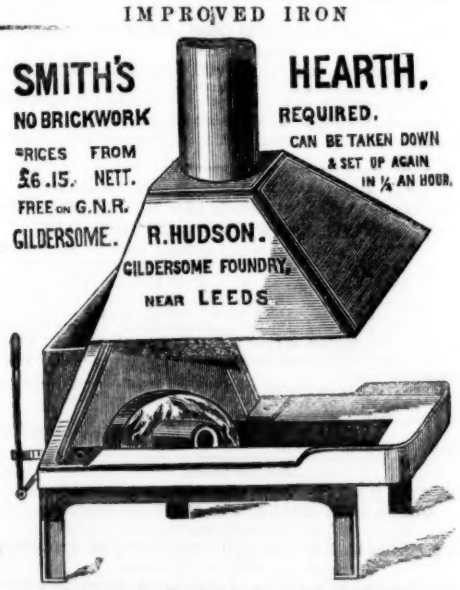

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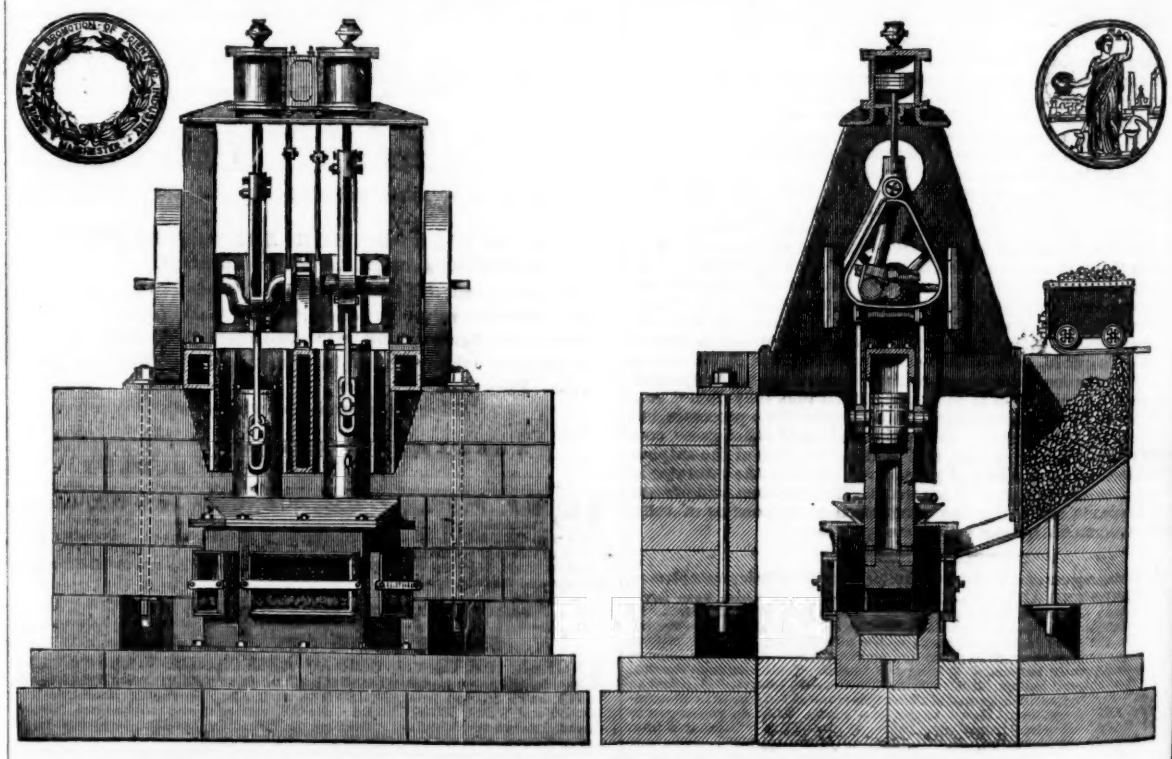

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THE MINING SHARE LIST.

BRITISH DIVIDEND MINES.

Shares	Mines.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
4000	Brookwood, *c*, Buckfastleigh	1 16 0	1	¼ 1	3 16 0	0 2 0	Nov. 1875
2000	Bryn Alyn,* *l*, Denbigh	10 0 0	—	—	0 7 0	0 7 0	Jan. 1877
10000	Caron, *l*, Cardigan*	2 0 0	2¾	2¼ 2¾	0 2 0	0 2 0	July 1878
1000	Carn Brea, *c, t*, Illogan†§	36 7 6	35	31 33	308 0 0	5 0 0	Feb. 1874
400	Cashwell, *l*, Cumberland*	2 10 0	2¾	1¾ 2¾	1 9 6	0 2 0	Aug. 1876
2450	Cook's Kitchen, *t*, Illogan†§	24 14 9	1	⅜ ⅜	11 17 0	0 7 6	Jan. 1872
10240	Devon Gt. Consols, *c*, Tavistock†*	1 0 0	2½	2 2½	116 15 0	0 5 0	July 1877
4296	Dolcoath, *c, t*, Camborne	10 14 10	27	24 26	112 11 3	0 5 0	June 1878
5000	East Black Craig,* *l.*, Scotland	5 0 0	—	—	0 10 0	0 10 0	Feb. 1877
800	East Darren, *l*, Cardiganshire	32 0 0	—	—	235 10 0	1 0 0	Aug. 1876
6400	East Pool, *t, c*, Illogan	0 9 9	9¼	9 10	15 11 9	0 2 6	Aug. 1878
40000	Glasgow Cara., *c** [30,000 £1 p., 10,000 15*s.* p.]	1 0 0	1⅜	1¼ 1½	0 13 10	0 0 6	Aug 1878
7500	Gorsedd and Merllyn Cons., *l*, Flint	2 10 0	4¼	3¾ 4¼	0 5 0	0 5 0	Aug. 1877
5000	Great Laxey, *l*, Isle of Man*	4 0 0	19⅛	18⅛ 19⅛	23 19 0	0 8 0	July 1878
615	Gt. Retallack, *l, bl*, Perranzabuloe	5 18 6	—	—	0 1 6	0 1 6	May 1878
6400	Green Hurth, *l*, Durham*	0 6 0	1	⅞ 1	0 14 10	0 0 10	Aug. 1878
20000	Grogwinion, *l*, Cardigan*	2 0 0	3	2 3	0 18 0	0 3 0	Mar. 1878
9830	Gunnislake (Clitters'), *t, c*	5 5 0	2¾	2½ 2¾	0 13 9	0 1 0	Oct. 1876
60000	Holmbush, *a, c, s-l*, Callington*	1 0 0	⅞	¾ ⅞	0 4 6	0 0 6	Sept. 1877
2800	Isle of Man, *l*, Isle of Man*†	25 0 0	—	—	82 5 0	0 10 0	Feb. 1876
20000	Leadhills,* *l*, Lanarkshire	6 0 0	3¼	2½ 3	0 15 0	0 3 0	Mar. 1878
400	Lisburne, *l*, Cardiganshire	18 15 0	60	55 60	586 10 0	1 0 0	May 1878
14000	Llanidloes,* *l*, Montgomery	3 0 0	1⅛	¾ 1⅛	0 9 0	0 4 6	Nov. 1876
9000	Marke Valley, *c*, Linkinhorne	5 3 6	⅞	¾ ⅞	7 15 0	0 2 0	Jan. 1876
10000	Mellanear Copper, Hayle*	2 0 0	4	3¾ 4	0 5 0	0 3 0	July 1878
9000	Minera Mining Co., *l*, Wrexham*	5 0 0	12	11 12	67 13 2	0 2 6	May 1878
20000	Mining Co. of Ireland, *ci, c, l**	7 0 0	—	—	23 17 6	0 2 6	Jan. 1878
444	North Busy, *c*, Chacewater	3 9 6	—	—	1 10 0	1 0 0	July 1877
10289	North Hendre, *l*, Wales	2 10 0	—	—	2 7 6	0 5 0	June 1878
30000	Panty Mwyn,* *l*, Mold (8794 iss.)	2 0 0	5	5 5¼	0 3 0	0 2 0	Aug 1878
6000	Pedn-an-drea Con., *t*, Redruth	0 8 6	—	—	0 9 0	0 9 0	June 1877
5000	Penhalls, *t*, St. Agnes	3 2 6	1	¾ 1	3 18 6	0 2 0	July 1875
6000	Pennant, *l*, *bar*, North Wales*	5 0 0	5	4 5	0 10 0	0 5 0	Mar. 1878
45793	Penstruthal,* *t, c*, Gwennap	2 0 0	⅛	⅛ ⅛	0 2 8	0 0 8	Nov. 1877
18000	Prince Patrick,* *s-l*, Holywell	1 0 0	2¼	1¾ 2¼	0 14 0	0 1 3	Jan. 1876
10000	Red Rock,* *l*, Cardigan	2 0 0	2	2 2½	0 4 0	0 2 0	Jan. 1878
12000	Roman Gravels, *l*, Salop*	7 10 0	8	7 8	7 15 9	0 5 0	Mar. 1878
512	South Caradon, *c*, St. Cleer	1 5 0	60	50 60	742 10 0	1 0 0	Mar. 1878
6123	South Condurrow, *t, c*, Camborne‡	6 5 6	11½	10½ 11½	4 1 0	0 8 0	Aug. 1878
12000	St. Harmon,* *l*, Montgom	3 0 0	3½	2½ 3½	0 12 0	0 3 0	July 1878
10000	So. Pr. Patrick,* *s-l.* (8000 sh. issued)	1 0 0	—	—	0 7 0	0 1 0	Oct. 1878
12000	Tankerville, *l*, Salop*	6 0 0	4	2¼ 4	4 17 0	0 5 0	Dec. 1876
6000	Tincroft, *c, t*, Pool, Illogan†§	10 0 0	7½	6½ 7½	50 8 6	0 5 0	May 1877
16000	Van, *l*, Llanidloes*	4 5 0	19½	18½ 19½	23 0 6	0 5 0	July 1878
3000	W. Chiverton, *l*, Perranzabuloe†	12 10 0	7⅛	6 7	55 10 0	0 10 0	Feb. 1878
1782	West Poldice, St. Day	10 0 0	—	—	1 19 0	0 4 0	July 1876
512	West Tolgus, *c*, Redruth	95 10 0	55	50 52½	29 15 0	1 10 0	July 1878
2048	West Wheal Frances, *t*, Illogan	28 8 9	2¾	2½ 2¾	3 12 6	0 5 0	Oct. 1872
600	West Wheal Seton, *c*, Camborne†	47 0 0	10	8 10	446 0 0	0 15 0	Apr. 1878
12000	West WyeValley,* *l*, Montgom	3 0 0	3	2 3	0 12 0	0 3 0	Nov. 1877
1024	Wh. Eliza Consols *t*, St. Austell	18 0 0	—	—	19 10 0	1 10 0	Aug. 1878
2048	Wheal Jane, *t*, Kea	2 13 10	¾	⅝ ¾	8 5 0	0 5 0	July 1878
4296	Wheal Kitty, *t*, St. Agnes	5 4 6	2	1¾ 2	11 19 6	0 2 6	Dec. 1874
15300	Wh. Newton, *a, c, s, t*, Calstock*	1 0 0	—	—	0 8 6	0 4 0	Sept. 1877
80	Wheal Owles, *t*, St. Just§	161 5 0	35	30 35	522 10 0	4 0 0	Aug. 1872
3000	Wheal Peevor, *t*, Redruth	7 11 0	6½	6 6½	0 10 0	0 5 0	Aug. 1878
6000	Wheal Prussia, *t*, Redruth	0 5 0	—	—	0 4 0	0 1 0	July 1877
10000	Wye Valley, *l*, Montgomery*	3 0 0	2	1½ 2	0 10 6	0 4 6	Oct. 1876

FOREIGN DIVIDEND MINES.

35500	Alamillos, *l*, Spain*†	2 0 0	1¾	1½ 1¾	1 19 3	0 1 0	April 1878
30000	Almada and Tirito Consol., *s*†	1 0 0	⅛	⅛ ⅛	0 6 3	0 1 0	May 1876
20000	Australian, *c*, South Australia†	7 7 6	1¾	1½ 1¾	0 19 6	0 1 6	July 1877
10000	Battle Mountain,* *c*, (6240 part pd.)	5 0 0	—	—	0 10 0	0 10 0	Nov. 1872
15000	Birdseye Creek, *g*, California*	4 0 0	⅞	⅝ ⅞	0 14 0	0 2 6	June 1874
20000	Cape Copper Mining,*† So. Africa	7 0 0	30½	29 30	31 7 6	0 17 6	June 1878
34433	Cedar Creek, *g*, California*	5 0 0	¾	⅛ ¾	0 5 0	0 2 6	June 1878
35000	Cesena Sul. Co., Romanga, Italy*	10 0 0	1	½ 1	2 8 0	0 4 0	Aug. 1878
15000	Chicago, *s*, Utah*	10 0 0	4¾	3½ 4	0 18 6	0 4 0	Jan. 1878
65000	Colorado United, *s-l*, Colorado*†	8 0 0	—	—	7 11 5	0 3 0	May 1877
100000	Don Pedro North del Rey*†	0 16 0	¾	⅜ ⅜	2 5 0	0 2 0	Mar. 1872
23500	Eberhardt & Aurora, *s*, Nevada*†	10 0 0	4½	4 4½	1 8 0	0 3 0	Dec. 1877
70000	English & Australian, *c*† S. Aust.	2 10 0	1½	1⅛ 1⅜	2 15 9	0 1 0	Mar. 1877
30000	Flagstaff, *s*, Utah*	10 0 0	⅝	⅜ ⅝	4 2 0	0 5 0	July 1878
25000	Fortuna, *l*, Spain*†	2 0 0	5	4½ 5	6 19 10	0 5 0	April 1878
55000	Frontino & Bolivia, *g*, New Gran.*†	2 0 0	2	2⅞ 3½	0 1 0	0 0 4	Oct. 1872
30000	Gold Run, *hyd.*	1 0 0	—	—	0 2 4	0 0 6	June 1878
68000	Kapunda Mining Co. Australia†.	1 3 0	1⅜	⅞ 1⅜	0 14 0	0 2 0	July 1873
20000	Last Chance, *s*,* Utah	5 0 0	5¼	4¾ 5¼	17 7 10	0 5 0	April 1878
15000	Linares, *l*, Spain*†	3 0 0	⅞	¾ ⅞	0 1 0	0 1 0	July 1878
65000	London and California, *g***	2 0 0	½	⅜ ½	0 1 6	0 1 0	July 1878
7837	Lusitanian, Portugal*† (£5 sh.)	3 10 0	—	—	1 11 6	0 1 0	July 1878
5000	Mamm. Copperopolis of Utah, *c, s*	10 0 0	—	—	0 5 0	0 5 0	Dec. 1872
5000	Mountain Chief, *s*, Utah*	10 0 0	—	—	0 4 0	0 4 0	Jan. 1873
10000	Pontgibaud, *s-l*, France†	20 0 0	30	28 30	25 19 11	0 11 11	June 1878
100000	Port Phillip, *g*, Clunes*†	1 0 0	⅝	⅛ ⅝	1 10 0	0 1 0	Jan. 1878
54000	Richmond Consols, *s*, Nevada*†..	5 0 0	8	8 8¼	6 1 6	0 10 0	Aug. 1878
40000	Santa Barbara,* *g*, Brazil	0 10 0	1¼	1¼ 1⅜	0 4 9	0 1 0	April 1878
120000	Scottish Australian Mining Co.*†	1 0 0	2	1¾ 2	15 per cent.		May 1878
80000	Scottish Austral. Mining Co., New	0 10 0	⅞	¾ ⅞	15 per cent.		May 1878
12500	Sierra Buttes, *g*, California*†	2 0 0	2	1¾ 2	1 18 0	0 2 0	Oct. 1877
60000	South Aurora, *s*, Nevada*	5 0 0	¾	⅝ ¾	0 14 10	0 0 10	Aug. 1878
£253000	St. John del Rey*† (£5 stock & multiples dealt in)	275 285	17½	17½ 17⅝	p. ct. for June		1878
20000	Tolima, *g*, s* So. America	5 0 0	—	—	0 11 6	0 6 6	May 1874
25000	Victoria (London)*, *g*, Australia	1 0 0	¾	⅝ ¾	0 12 6	0 0 7½	Jan. 1878
15000	Western Andes, *s*,* New Granada	5 0 0	—	—	0 12 0	0 12 0	July 1876
91000	W. Prussian (5500 pref. sh. 10*l.* pd)	10 0 0	11	10½ 11	1 2 0	0 4 0	July 1878

NON-DIVIDEND FOREIGN MINES.

Shares	Mines.	Paid.	Last Pr.	Clos. Pr.	Last Call.
5000	Anguilla Phosphate, West Indies (4000 issued)	10 0 0	—	—	Fully pd.
12000	Argentine, *g*, Argentine Republic	5 0 0	¾	¼ ¾	Fully pd
3000	Bellavista, *s*, Peru* (£10 shares)	10 0 0	—	—	Fully pd.
30000	Blue Tent, *hyd.*, California	5 0 0	3	2¾ 3	Fully pd.
49935	Chontales, *g, s*, Nicaragua*†	2 0 0	⅛	⅛ ¼	Fully pd.
16000	Condes of Chili, *s-l*	1 0 0	—	—	Fully pd.
20000	English Australian, *g*, Victoria*	5 0 0	⅜	⅜ ⅜	Fully pd.
35000	Excelsior Hydraulic Gold Washing Co., California*	1 0 0	—	—	Fully pd.
100000	Exchequer, *g, s*, California*†	6 0 0	⅜	⅜ ⅜	Fully pd.
40000	Holcombe Valley, *g*,* California	1 0 0	—	—	Dec. 1871
8000	Hornachos,* *s-l*, Spain	1 0 0	2s.	1s. 2s.	Fully pd.
12000	Hultafall,* *l, bl*, Orebro, Sweden	10 0 0	—	—	Fully pd.
12000	Hunter Consolidated, *s-l*, Utah	5 0 0	—	—	Fully pd.
20000	Imperial Brazilian Collieries, Brazil*	10 0 0	5	4 5	Fully pd.
100000	I. X. L., *g, s*, California*	5 0 0	—	—	Fully pd.
50000	Javali, *g*, Nicaragua*	1 0 0	—	—	Fully pd.
3500	La Manche, *l*, Newfoundland	2 0 0	9s.	7s. 9s.	Fully pd.
12000	Lanestosa,* *l, z*, Viscays, Spain (£2 shares)	10 0 0	—	—	Fully pd.
75000	Malabar, *g*, Colombia* (67165 issued)	1 15 0	—	—	Mar. 1876
40000	Malpaso, *g*, Colombia* (7400 pref. shares, fully paid)	1 0 0	¼	⅛ ¼	Fully pd.
12000	Menzenberg, *c*, Honnef, Germany*	1 0 0	⅜	¼ ⅜	Fully pd.
4588	New Bensberg, *i, l*, Germany	5 5 0	—	—	Fully pd.
66000	New Quebrada, *c*, Venezuela*	5 0 0	—	—	Nov. 1876
20000	New Zealand Kapanga, *g*, Coromandel*	5 0 0	2	1¾ 2	Fully pd.
3000	Oregon,* *g*, Oregon, U.S. (preference shares)	5 0 0	1½	1 1½	Fully pd.
50000	Panulcillo, *c*, Chili*† (£80000 debentures)	4 0 0	—	—	Fully pd.
80000	Pestarena United, *g*, Italy*†	4 0 0	¾	⅝ ¾	Fully pd.
25000	Pitanqui,* *g*, Brazil (incl. 6000 sh. £1 fully paid)	3 0 0	6s.	4s. 6s.	Fully pd.
25000	Placerville,* *g g*, California	0 5 0	—	⅛ ¼	Aug. 1878
50000	Providencia and New Rosario, *s*, Mexico*	2 0 0	2¼	2¼ 3	Fully pd.
50000	Rica, *g*, Colombia* (40000 issued)	1 0 0	—	—	Fully pd.
£2,181,000	Rio Tinto,* *c*, Huelva, Spain	1 0 0	¾	⅝ ¾	Fully pd.
100000	Rosza Grande, *g*, Brazil*† (£1 shares)	Stock	64	61 63	Fully pd.
30040	Russia Copper, Orenburg and Ufa*†	0 19 0	¾	⅛	July 1872
25000	San Pedro, *c*, Chili*	10 0 0	—	—	Fully pd.
10000	Silver Plume, *s*, Colorado*	2 0 0	⅜	¼ ⅜	Fully pd.
30000	Tecoma, *s*, Utah*	1 0 0	—	—	Fully pd.
43174	United Mexican, *s*, Mexico*†‡	10 0 0	⅝	⅜ ⅝	Fully pd.
64000	Utah, *g, s-l*, Utah*	20 0 3	3¾	3½ 3¾	May 1878
10000	Virneberg, *c* Rheinbreitbach, Germany* (£2 shares)	5 0 0	—	—	Fully pd.
15000	Yorke Peninsula, *c*, South Australia	1 15 0	—	—	Jan. 1878
40000	Yorke Peninsula, *c*, South Australia Preference	1 0 0	—	—	Fully pd.
		1 0 0	½	⅜ ½	Fully pd.
		1 0 0	1⅝	⅞ 1⅝	Fully pd.

§ Have made calls since last dividend was paid.

FOREIGN AND MISCELLANEOUS STOCKS, BONDS, LOANS, AND TRUSTS.

	Closing Prices	
Argentine, 1868 6 per cent.	72	73
Bolivia, 6 per cent.	27½	28½
Brazilian, 1865, 5 per cent.	92	94
Chilian, 1866, 7 per cent.	92	96
City of Providence, 5 p.c. coupon buds	101	103
Egyptian, Gov. preference	73½	74½
Do., unified debt, scrip	54½	55
Do., 7 per cent., V.M.L.	77	79
Do., 7 per cent. guar.	83	85
Do., K. Daira Sanieh	53	55
Foreign and Col. Gov. Trust, 6 p. ct.	77	82
Do., 5 per cent., 2d issue	65	70
Do., 6 per cent., 3d issue	63	68
Do., 1872, 4th issue	63	68
Do., 1873, 5th issue	58	62
Peruvian, 1870, 6 per cent.	14¾	14¾
Do., 1872, 5 per cent.	13½	13¾
Russian, 5½ per cent. L. Mort.	—	—
Spanish, Quicksilver Mort., 5 p. ct.	96	98
United States Mort. 6 per cent.	100	102

NON-DIVIDEND MINES.

Shares		Paid.	Last wk.	Clos. pr
40000	Aberdaunant, *l*. Llanidloes*	1 0 0	⅜	½ ¾
2560	Aberllyn,* *l, bl*, Carnarvon	10 0 0	11	10 11
10000	Aberystwith,* *s-l*, Cardigan	5 0 0	—	—
80	Albion, *i*, Cornwall	100 0 0	—	—
7800	Alvig. & Burng.,*†, St. Aust.	3 0 0	1¾	1¾ 1¾
12000	Assheton, *l*, Carnarvonshire*	5 0 0	1	¾ 1
50000	Ballycummisk,* *c*, Schull	2 0 0	—	—
12000	Bedford Unit.,* *c*. Tavist. (1*l*. liab.)	0 1 0	⅜	⅛ ⅜
30000	Bettws-y-Coed,* *l* (20,000 issued)	1 0 0	1⅛	1 1⅛
8000	Blaen Caelan,* *l*, Cardigan	3 0 0	4¾	4½ 4¾
3937	Blue Hills, *t, c*, St. Agnes	3 16 6	⅜	⅜ ⅜
30000	Bodidris,* *l, bl*, Denbighshire	1 0 0	1¾	1½ 1¾
1000	Bollihope Vale,* *s-l*, Durham	5 0 0	—	—
200	Botallack, *t, c*, St. Just†	123 15 0	—	—
2000	Bowden Hill,* *ma*	1 0 0	1	⅜ 1
6000	Bradwell Moss Rake	1 0 0	3	2½ 3
256	Browngelly, *c*, St. Neot	2 0 0	2½	2¼ 2½
80000	Cambrian,* *s-l, c*, Cardiganshire	2 0 0	3⅛	⅝ ¾
3348	Cargoll, *s-l*, Newlyn†	7 4 0	⅛	⅛ ⅛
20000	Central Foxdale, *i*, I. of Man*(2*l*. sh.)	1 5 0	—	—
10000	Central Van,* *l, bl*, Llanidloes	5 0 0	—	—
5120	Clementina, *l*, Llanrwst*†	1 0 0	1¾	1¼ 1¾
7500	Combellack,* *t*, Wendron	2 0 0	—	—
6000	Combmartin, *s-l*, North Devon	0 7 0	⅛	⅛ ⅛
4000	Court Grange, *s-l*, Cardiganshire	1 0 0	1½	1 1¼
15000	Cwm Dwyfor,* *c, s-l*, Wales	1 0 0	—	—
5000	Ditto, 12½ per cent. pref.	1 0 0	—	—
3000	Cwmystwith (New) [5*l*. shares]	4 0 0	—	—
1780	D'Eresby Cons., *l, bl*, Carnarvon	10 0 0	11	10 11
512	D'Eresby Mountain, *l, bl*, Llanrwst	20 0 0	85	80 85
20000	Denbighshire Consolidated, *l**	3 0 0	1⅛	1 1⅛
12000	Derwent,* *l*, Durham	4 0 0	2	2 2½
10000	Dubby Syke, *l*, Durham*	0 15 0	⅛	⅛
6144	East Caradon, *c*, St. Cleer†	2 19 0	⅛	⅛ ⅛
4000	East Chiverton, *l*, Perranzabuloe	7 1 0	3	2½ 3
3000	East Craven Moor*, *l*, Pateley Bdge	10 0 0	9	8 9
6000	East Goginan, *l*, Cardigan	2 0 0	—	—
18000	East Van, *i*, Llanidloes*	5 0 0	5¾	5¼ 5¾
1722	East Wh. Lovell, *t*, Helston	9 1 0	⅛	⅛ ⅛
20000	Elgar,* *s-l*, Cardiganshire	1 0 0	⅜	⅛ ⅜
8000	Fronvellan, *l*, Mont.* [4000 sh. fy. pd.]	1 0 0	—	—
3950	Gawton, *c*, Tavistock	4 5 6	⅜	⅛ ⅜
12000	Glan Clwyd,* *l*, Gwyddelwern	1 0 0	—	—
14000	Glenroy,* *s-l*, Isle of Man	4 5 0	⅛	⅛ ⅛
10000	Glyn,* *l*, Llanidloes	2 0 0	¾	⅛ ¾
12000	Goginan, & Level Newydd, Card., *l*	2 10 0	¾	⅛ ¾
100000	Gold, *g*, Merionethshire	1 0 0	—	—
20000	Goreu,* *s-l*, Carmarthen	1 0 0	1	¾ 1
20000	Gt. E. Foxdale, *l*, I. of Man (1*l*. sh)	0 18 0	—	—
9500	Great Holway,* *l*, Flintshire	5 0 0	5¾	4¾ 5¾
6000	Great Pant-y-Pydew, *l*, Holywell	2 0 0	—	—
6000	Great Wheal Eleanor, *t*, North Bovey	1 17 6	2	1¾ 2
6000	Great Wheal Rodd,* *s-l*, Cornwall	0 10 0	1	¾ 1
10000	Harehope Gill,* *t*, Durham (£1 sh.)	0 5 0	—	—
600	Hartington Moor,* *carb. l*, Derby	1 0 0	2	1½ 2
6400	Harwood,* *l*, Durham	0 15 0	5s.	4s. 5s.
4024	Herodsfoot, *l*, near Liskeard†	8 10 0	4½	4 4½
18000	Hingston Down, *c*, Calstock*†	0 6 0	⅛	¼ ⅜
5000	Hush Elisteddfod Minera,* *l*	2 0 0	—	—
200	Islay,* *l*, Scotland	28 0 0	—	—
2500	Killaloe, *si*, Tipperary†	1 0 0	—	—
6000	Killifreth, *t*, Chacewater	2 3 6	1	¾ 1
25000	Kingston Con., *s-l*, Stoke Climsland	1 0 0	—	—
	Ditto, preference	1 0 0	1⅛	1 1⅛
12000	Ladywell,* *l*, Salop	2 10 0	1	¾ 1
12000	Ditto, 10 per cent. pref., 1*l*. each	0 10 0	⅜	⅛ ⅜
2500	Levant, *c, t*, St. Just	10 4 6	2	1¾ 2
6000	Livingstone Consols, *t*, St. Agnes	0 10 0	1	¾ 1
5120	Lovell, *t*, Wendron	0 16 0	2	1½ 2
25000	Llanrhaiadr, *l*, Montgomery*	2 0 0	—	—
30000	Llanrwst,* *l*, Carnarvon	2 0 0	4	3½ 4
	24 Mawston,* *l*, South Wales	50 0 0	65	55 65
6000	Medlyn Moor, *t*, Wendron	2 9 10	—	—
11000	Melyndwr, *l*. Cardigan*	8 0 0	—	—
7000	Mid Devon Copper*	0 6 8	1¼	¾ 1¼
21000	Ditto	0 2 6	1	¾ 1
8000	Mineral Corp. of Great Britain*	10 0 0	11	10 11
11000	Monydd Gorddu, *l*, Cardigan*(Red.)	5 0 0	5	3½ 5
12000	Morfa Du, *z, g, s*, Anglesea	0 12 6	⅞	⅝ ⅞
25000	Nant-y-Ronen, *s-l*, Cardigan*	1 0 0	—	—
15000	Nascent Copper*	1 0 0	—	—
4768	New Bronfloyd,* *c*, Cardigan (5*l*. sh.)	3 16 0	4½	4⅜ 4½
8000	New Dolcoath, *t, c*, Camborne*	3 0 0	1¾	1½ 1¾
20000	New East Foxdale, *s-l*, Isle of Man.	0 15 0	—	—
16000	New Fowey Consols, *t*, St. Blazey*.	3 0 0	2	1½ 2
1492	New Hendra, *t*, Breage	3 9 0	—	—
3200	New South Merllyn, *l*, Flint*	2 10 0	1	¾ 1
3500	New Tincroft,* *t*, Lelant	0 0 0	3	2½ 3
30000	New Wheal Emma, *c*, Buckfastleigh	2 0 0	—	—
4000	North Cornwall,* *l*, Cornwall	5 0 0	3⅝	⅝ ⅝
30000	North Laxey,* Isle of Man	1 0 0	4s.	2s. 4s.
2000	North Levant, *t, c*, St. Just†	12 16 0	1	¾ 1
20000	North Prince Patrick,* *l*, Holywell	1 0 0	—	—
5936	North Treskerby, *c*, St. Agnes	5 17 10	—	—
2000	North Wheal Towan, *t, c*, Illogan	1 19 6	—	—
6400	Oola Hills,* *s-l*, Limerick	5 0 0	—	—
12000	Pandora,* *l*, Carnarvon	2 0 0	¾	⅝ ¾
6000	Park Valley,* *s-l*, North Devon	0 4 0	1	¾ 1
6000	Parracombe, *s l*, Devon	0 5 0	⅛	⅛ ⅛
16923	Parys Mountain,* *c*, Anglesea	3 0 0	⅜	⅛ ⅜
12000	Phœnix. & W. Phœnix, *t, c*, Link,§	5 7 3	5	4½ 5
4000	Pateley Bridge, *l*, Yorkshire	5 0 0	5	4 5
7000	Picton,* *s-l*, Holywell, fully paid	1 0 0	5	4 5
12000	Plynlimmon, *l*, Llanidloes*	2 0 0	6s.	4s. 6s.
10000	Port Nigel,* *s-l*, Carnarvonshire	2 0 0	⅛	¾ ⅛
2000	Prideaux Wood, *t*, Llanivery	5 0 0	—	—
5182	Prince of Wales, *c*, Calstock†	2 6 0	2s.	1s. 2s.
6000	Relistian Consols, *c*, Gwinear	0 10 0	⅛	⅛ ⅛
15000	Rookhope, *l*, Durham*	1 10 0	⅜	⅛ ⅜
5000	Silvercross,* *c, t*, Marazion	1 0 0	—	—
4200	Snowbrook, *s-l*, Montgomery	5 0 0	—	—
000	So. Cwmystwith, *l*, Cardiganshire.	2 0 0	3	2½ 3
4000	South Darren, *l*, Cardigan*	1 10 0	2¼	1⅞ 2⅛
30000	South de Eresby Mountain, *l*	1 0 0	1⅝	1⅜ 1⅝
512	South Dolcoath, *c, t*, Redruth	4 5 0	1⅛	1 1⅛
5000	So. Molton Cons., *s-l*, No. Devon	3 6	1	¾ 1
18000	South Roman Gravels, *l**	1 10 0	¼	⅛ ¼
6000	South Roskear, *t, c*, Camborne	7 5 0	—	—
6000	South Tolcarne, *t, c*, Camborne	2 5 6	¾	⅛ ¾
937	South Wheal Crofty, *c*, Illogan	40 0 10	7	4 6
4500	South Wh. Frances, *c*, Illogan†	7 12 4	4¼	3¾ 4¼
6000	St. Lawrence, Amal., *l*, Flintshire*	2 0 0	—	—
10000	St. Patrick, *i*, Halkin, Holywell*	1 0 0	1¼	1 1¼
6000	Success, &c., *i*, Derb. (12,000*l*. called)	1 0 0	—	—
16000	Sunnyside,* *l*, Durham	2 0 0	2½	2 2½
30000	Talybont, *s-l*, Cardiganshire	1 0 0	1¼	1 1¼
6400	Teesdale,* *i*, Durham	1 0 0	⅛	⅛ ⅛
14000	Teign Valley, *i, bar.*, Bridford	1 0 0	⅛	⅛ ⅛
10000	Temple, *l*, Cardigan*	1 0 0	—	—
10000	Tolgus Consols,* *c*, Redruth	1 0 0	6¼	5¾ 6¼
5000	Treleigh Wood, *t*, Redruth	5 0 0	4	3¼ 4
12000	Trethellan, *s-l*, Crantock*	6 1 0	—	—
640	Truro*, *l*, Nerquis, Flintshire	2 0 0	—	—
10000	Tyn-y-Fron,* *l*, Cardigan	10 0 0	—	—
20000	Van Consols, *l*, Llanidloes*	1 0 0	1⅝	1⅜ 1⅝
1000	Vaughan*, *l*., Cardiganshire	2 10 0	⅝	⅜ ⅝
18000	Victor,* *l*, Flintshire (£1 share)	10 0 0	—	—
12000	West Assheton, *l*, Carnarvon	0 5 0	—	—
6000	West Basset, *c*, Illogan†	1 0 0	1⅝	1⅜ 1⅝
5500	West Combmartin, *s-l*, North Devon	6 13 4	⅞	⅝ ⅞
7000	Ditto	1 0 0	—	—
3000	W